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TASK IV STAGE DATA AND PERFORMANCE REPORT
FOR
CASING TREATMENT INVESTIGATIONS

VOLUME II

**EVALUATION OF RANGE AND DISTORTION TOLERANCE
FOR HIGH MACH NUMBER TRANSONIC FAN STAGES**

By

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Prepared For

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

May, 1971

**CASE FILE
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NASA Lewis Research Center
Contract NAS3-11157
Charles H. Voit Project Manager

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ERRATA

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ABSTRACT

Two high-tip-speed compressor stages were tested with various rotor tip casing treatment configurations under conditions of undistorted inlet flow, tip-radial distortion and circumferential distortion. The first stage consisted of a 1400 ft/sec tip speed medium-aspect-ratio rotor plus a stator vane row; the second stage had a 1500 ft/sec tip speed medium-aspect-ratio without zero-turning inlet guide vanes. Overall performance and stall margin were determined for each stage configuration and inlet condition at 70, 90, and 100% of design speed. Extensive surveys of flow conditions were made for the case of circumferential distortion. In addition, blade element data were obtained when testing with undistorted and radial distortion inlet conditions.

This report is the second of two volumes on the NASA Task IV program. Contained within is a tabulation of all blade element data obtained during undistorted inlet and radial distortion tests of the Task I and Task II stages. In addition, the circumferential distortion flow survey data are presented for both stages. The summary listings of overall performance from Volume I are also included for reference. Volume I, CR-82862, contains the techniques and procedure used to acquire the data and an analysis and discussion of the test results.

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APPENDIX A

SYMBOLS

APPENDIX A - SYMBOLS

Symbol	Description	Units
A	Annulus or Streamtube Area	in. ²
C	Chord Length of Cylindrical Section	in.
C _h	Enthalpy-Equivalent Static-Pressure-Rise Coefficient, ie for Rotor:	---
	$C_h = \frac{2gJc_p t_1 \left[\left(\frac{p_2}{p_1} \right)^{\frac{\gamma-1}{\gamma}} - 1 \right] - (U_2^2 - U_1^2)}{V_1'^2}$	
C _p	Static-Pressure-Rise Coefficient, ie for Rotor:	---
	$C_p = \frac{p_2 - p_1}{P_1' - p_1}$	
c _p	Specific Heat at Constant Pressure, 0.2399 Btu/lb-°R	
D	Diffusion Factor:	---
	$D_{\text{Rotor}} = 1 - \frac{V_2'}{V_1'} + \frac{r_2 V_{\theta_2} - r_1 V_{\theta_1}}{2\bar{r} \sigma V_1'}$	
	$D_{\text{IGV/Stator}} = 1 - \frac{V_2}{V_1} + \frac{r_1 V_{\theta_1} - r_2 V_{\theta_2}}{2\bar{r} \sigma V_1}$	
g	Acceleration Due to Gravity, 32.174 ft/sec ²	
i	Incidence Angle; Difference Between Flow Angle and Camber Line Angle at Leading Edge in Cascade Projection	deg
i _{ss}	Suction Surface Incidence Angle, Difference Between Flow Angle and Leading Edge Suction Surface	deg
J	Mechanical Equivalent of Heat, 778.161 ft-lb/Btu.	
K _{bl}	Effective Area Coefficient Due to Wall Boundary Layer Blockage	---
M	Mach Number	---
N	Rotational Speed	rpm

APPENDIX A - SYMBOLS (Continued)

Symbol	Description	Units
P	Total or Stagnation Pressure	psia
p	Static Pressure	psia
r	Radius	in.
\bar{r}	Mean Radius, Average of Streamline Leading and Trailing Edge Radii	in.
T	Total or Stagnation Temperature	°R
t	Static Temperature	°R
U	Rotor Speed	ft/sec
V	Air Velocity	ft/sec
W	Weight Flow	lbs/sec
Z	Displacement Along Compressor Axis	in.
β	Flow Angle; Angle Whose Tangent is the Ratio of Tangential to Axial Velocity	deg
$\Delta\beta$	Flow Turning Angle, $\Delta\beta = \beta_1 - \beta_2$	deg
γ	Ratio of Specific Heats	---
γ°	Blade-Chord Angle (Stagger), Angle in Cascade Projection Between Blade Chord and Axial Direction	deg
δ	Pressure Correction, $P_{\text{Actual}}/14.696$ psia	
δ°	Deviation Angle, Difference Between Flow Angle and Camber Angle at Trailing Edge in Cascade Projection	deg
ϵ°	Slope of Meridional Streamline	deg
η	Efficiency	
θ	Temperature Correction, $T_{\text{Actual}}/518.7^\circ\text{R}$	
θ°	Circumferential Position From Top Center	deg

APPENDIX A - SYMBOLS (Continued)

Symbol	Description	Units
K°	Angle Between Tangent to Blade Meanline and the Axial Direction	deg
σ	Solidity, Ratio of Chord to Blade Spacing	---
$\bar{\omega}$	Total Pressure Loss Coefficient	---
	Rotor: $\bar{\omega}' = \frac{P_2'_{id} - P_2'}{P_1' - p_1}$, IGV/Stator: $\bar{\omega} = \frac{P_1 - P_2}{P_1 - p_1}$	
$\frac{\bar{\omega} \cos \beta_2}{2\sigma}$	Total Pressure Loss Parameter	---
Subscripts		
ad	Adiabatic	
an	Annulus	
d	Downstream Measurement Station (Table III)	
e	Edge of Blade (Figure 7)	
id	Ideal	
j	Immersion	
m	Meridional Direction	
p	Polytropic	
s	Measurement Station (Figure 7)	
ss	Suction Surface	
t	Tip at Station 1.0	
u	Upstream Measurement Station (Table III)	
z	Axial Direction	
θ	Tangential Direction	

APPENDIX A - SYMBOLS (Concluded)

Subscripts	Description
1	Leading Edge
2	Trailing Edge
0.01	Measurement Station Designation, Vehicle Inlet
0.18	Measurement Station Designation, IGV Inlet
0.95	Measurement Station Designation, Rotor Inlet
1.51	Measurement Station Designation, Stator Inlet
2.20	Measurement Station Designation, Stage Discharge

Superscripts	Description
'	Relative to Rotor
*	Critical Flow Condition

APPENDIX B

DUPLICATE LISTING OF TASK I
AND TASK II STAGE TEST DATA

Table IV. Summary of Task I Stage Undistorted Inlet Test Data.

a. Honeycomb #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
1	70	30	168.6	1.182	.812	OP
2	70	15	159.1	1.228	.862	OP
3	70	9	148.1	1.262	.861	OP
4	70	6	139.5	1.276	.827	OP
5	70	6	138.3	1.275	.824	OP
6	70	2	123.3	1.283	.759	OP
7	70	25*	113.9	1.285	.713	OP
8	90	50*	187.8	1.509	.843	OP
9	90	35*	173.6	1.532	.801	OP
10	90	80*	196.1	1.471	.858	OP
11	90	50	205.0	1.272	.697	OP
12	90	4.5	171.8	1.531	.788	OP
13	100	30	220.7	1.347	.691	OP
14	100	4.5	186.7	1.691	.755	OP
15	100	5	190.8	1.697	.775	BE (p. 235)
16	100	9	214.5	1.629	.835	BE (p. 237)
17	100	15	219.1	1.472	.798	BE (p. 239)
18	90	15	203.7	1.389	.823	OP
19	90	6	182.7	1.528	.822	OP
20	70	15	160.7	1.231	.865	OP
21	70	0.35	114.3	1.284	.702	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.
 ** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Continued).

b. Honeycomb Insert #2 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
34	70	30	166.5	1.181	.807	OP
35	70	1.5	117.3	1.279	.735	OP
36	90	30	205.9	1.292	.741	OP
37	90	4.5	172.2	1.523	.801	OP
38	100	30	220.4	1.355	.693	OP
39	100	4.5	184.3	1.686	.758	BE (p. 241)
40	100	9	213.7	1.630	.844	BE (p. 243)
41	100	15	221.1	1.484	.816	BE (p. 245)
42	90	6	180.9	1.529	.840	OP
43	90	15	202.8	1.394	.826	OP
44	70	11	152.3	1.254	.865	OP
45	70	8	144.6	1.268	.847	OP
46	70	4.5	133.0	1.281	.814	OP
47	100	6.2	201.5	1.699	.820	OP
59	100	7.8	210.3	1.659	.841	OP
60	90	10	195.6	1.470	.868	OP
61	90	8	190.2	1.503	.856	OP
62	70	15.8	159.4	1.225	.870	OP
63	70	13.5	157.1	1.236	.872	OP
64	70	11	152.0	1.250	.869	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Continued).

c. Circumferential Grooved Insert #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
65	70	30	167.3	1.181	.820	OP
66	70	13	156.6	1.236	.872	OP
67	70	8	144.5	1.263	.851	OP
68	70	2	121.6	1.280	.769	OP
69	70	4.5	132.7	1.277	.822	OP
70	90	30	203.4	1.286	.740	OP
71	90	15	201.2	1.385	.834	OP
72	90	10	196.4	1.466	.872	OP
73	90	6	181.4	1.522	.841	OP
74	90	4.5	169.3	1.522	.800	OP
75	100	30	216.7	1.341	.701	OP
76	100	30	216.9	1.342	.709	BE (p. 247)
77	100	9	212.5	1.619	.850	BE (p. 249)
78	100	6.5	202.6	1.687	.837	OP
79	100	6	199.2	1.693	.829	BE (p. 251)
80	100	5.9	198.6	1.692	.824	OP
81	70	16	160.3	1.226	.876	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Continued).

d. Circumferential Grooved Insert #2 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
132	70	30	167.1	1.180	.797	OP
133	70	2	122.0	1.282	.758	OP
134	70	4.5	133.9	1.279	.812	OP
135	70	8	144.8	1.267	.850	OP
136	70	13.5	157.4	1.236	.872	OP
137	90	30	203.6	1.286	.742	OP
138	90	4.5	169.3	1.525	.797	OP
139	90	6	181.8	1.527	.843	OP
140	90	8	190.7	1.505	.869	OP
141	90	10	196.2	1.470	.877	OP
142	100	5	190.4	1.692	.789	BE (p. 253)
143	100	9	213.2	1.626	.857	BE (p. 255)
144	100	30	217.3	1.347	.710	BE (p. 257)
145	100	11	216.4	1.559	.847	OP
146	100	7	206.3	1.683	.848	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Continued).

e. Circumferential Grooved Insert #3 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
194	70	30	165.0	1.182	.818	OP
195	70	13.5	155.5	1.234	.874	OP
196	70	10	149.3	1.252	.871	OP
197	70	8	143.6	1.264	.860	OP
198	70	5	133.9	1.275	.820	OP
199	70	2.5	123.1	1.280	.786	OP
200	90	30	202.8	1.288	.743	OP
201	90	15	200.7	1.284	.839	OP
202	90	10	195.6	1.466	.878	OP
203	90	8	189.6	1.498	.869	OP
204	90	6	179.6	1.517	.844	OP
205	90	4	165.6	1.518	.789	OP
206	100	30	217.9	1.345	.699	OP
207	100	4.7	186.8	1.679	.781	BE (p. 259)
208	100	9	212.4	1.621	.854	BE (p. 261)
209	100	30	216.0	1.341	.705	BE (p. 263)
210	100	11	216.9	1.564	.853	OP
211	100	7	205.2	1.676	.854	OP
212	70	10	151.1	1.255	.863	OP
213	70	1.8	121.0	1.281	.761	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Continued).

f. Skewed Slotted Insert #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
116	70	2 1/4*	110.9	1.287	.692	OP
117	100	4.8	187.8	1.695	.763	BE (p. 265)
118	100	9	214.0	1.630	.832	BE (p. 267)
119	100	30	219.6	1.354	.694	BE (p. 269)
120	100	11	218.1	1.567	.828	OP
121	100	7	206.1	1.692	.825	OP
122	90	4	166.5	1.535	.769	OP
123	90	6	181.7	1.538	.824	OP
124	90	8	190.4	1.512	.850	OP
125	90	10	196.9	1.477	.856	OP
126	90	15	201.9	1.394	.824	OP
127	90	30	205.3	1.292	.727	OP
128	70	30	168.6	1.184	.806	OP
129	70	13.5	157.5	1.237	.853	OP
130	70	8	145.1	1.268	.836	OP
131	70	2.5	125.5	1.285	.765	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Continued).

g. Skewed Insert #2 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
163	90	30	202.3	1.285	.740	OP
164	90	5	172.5	1.532	.806	OP
165	90	6	181.1	1.532	.834	OP
166	90	8	190.8	1.509	.857	OP
167	90	10	196.4	1.472	.864	OP
168	90	15	200.5	1.386	.828	OP
169	100	4.5	185.2	1.687	.759	BE (p. 271)
170	100	9	212.3	1.619	.840	BE (p. 273)
171	100	30	216.3	1.344	.697	BE (p. 275)
172	100	11	214.8	1.551	.830	OP
173	100	7	207.5	1.676	.831	OP
174	70	30	167.6	1.187	.836	OP
175	70	13.5	156.0	1.237	.878	OP
176	70	8	144.5	1.266	.852	OP
177	70	2.5	124.9	1.283	.778	OP
178	70	26*	115.4	1.285	.728	OP
179	70	20	163.2	1.205	.843	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Continued).

h. Skewed Slotted Insert #3 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
228	70	30	166.4	1.182	.829	OP
229	70	18.5	161.6	1.211	.856	OP
230	70	13.5	156.7	1.237	.875	OP
231	70	10	150.2	1.255	.873	OP
232	70	8	145.5	1.267	.846	OP
233	70	5	136.31	1.277	.814	OP
234	70	26.5	116.8	1.284	.730	OP
235	90	30	204.9	1.293	.733	OP
236	90	15	204.5	1.391	.839	OP
237	90	10	197.7	1.476	.865	OP
238	90	8	190.7	1.508	.861	OP
239	90	4.5	170.7	1.531	.792	OP
240	100	30	221.5	1.355	.694	BE (p. 277)
241	100	9	215.2	1.638	.848	BE (p. 279)
242	100	4.5	184.7	1.691	.766	BE (p. 281)
243	100	7	206.5	1.692	.831	OP
244	100	11	217.3	1.574	.833	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Continued).

i. Skewed Slotted Insert #4 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
1	70	30	167.7	1.183	.807	OP
2	70	18.5	162.2	1.213	.857	OP
3	70	13.5	158.2	1.240	.884	OP
4	70	10	151.3	1.259	.866	OP
5	90	30	205.1	1.296	.718	OP
6	90	15	202.9	1.398	.837	OP
7	90	10	196.7	1.478	.861	OP
8	90	8	190.3	1.515	.853	OP
9	70	24.8*	113.8	1.285	.712	OP
10	70	8	145.4	1.268	.838	OP
11	70	5	134.8	1.280	.812	OP
12	90	4.4	169.1	1.536	.771	OP
13	100	30	220.1	1.355	.688	BE (p. 283)
14	100	9	213.4	1.640	.832	BE (p. 285)
15	100	4.6	184.8	1.699	.745	BE (p. 287)
16	100	11	217.6	1.580	.828	OP
17	100	7	206.5	1.697	.821	OP
18	90	5	173.7	1.544	.788	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.
** - OP - Overall Performance Reading
BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Continued).

j. Blade Angle Slotted Insert #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
257	70	30	166.5	1.181	.805	OP
258	70	18.5	162.2	1.211	.858	OP
259	70	13.5	157.0	1.236	.868	OP
260	70	10	151.0	1.255	.852	OP
261	70	8	144.8	1.267	.861	OP
262	70	5	135.9	1.278	.811	OP
263	90	30	205.2	1.293	.744	OP
264	90	15	203.0	1.391	.840	OP
265	90	10	195.5	1.463	.863	OP
266	90	8	190.3	1.499	.867	OP
267	70	25	113.8	1.283	.709	OP
268	90	3.6	162.4	1.514	.756	OP
269	100	30	221.7	1.443	.838	BE (p. 287)
284	100	30	220.9	1.358	.696	BE (p. 289)
285	100	9	214.4	1.620	.845	BE (p. 291)
286	100	4	180.6	1.681	.743	BE (p. 293)
287	100	7	205.1	1.670	.832	OP
288	100	11	218.2	1.565	.832	OP
289	70	10	150.8	1.256	.867	OP
290	70	8	145.1	1.266	.853	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

BE - Blade Element Performance Reading

Table IV. Summary of Task I Stage Undistorted Inlet Test Data (Concluded).

k. Blade Angle Slotted Insert #2 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
325	70	30	167.2	1.181	.788	OP
326	70	18.5	162.8	1.210	.838	OP
327	70	13.5	156.8	1.236	.867	OP
328	70	10	152.0	1.256	.869	OP
329	70	8	144.3	1.267	.853	OP
330	70	5	135.1	1.279	.81	OP
331	70	0.8	116.2	1.285	.737	OP
332	90	30	204.7	1.293	.729	OP
333	90	15	203.6	1.39	.837	OP
334	90	10	197.2	1.469	.865	OP
335	90	8	190.7	1.503	.858	OP
336	90	3.8	164.5	1.521	.777	OP
337	90	5	175.5	1.53	.812	OP
338	100	30	220.6	1.355	.696	BE (p. 295)
339	100	9	214.6	1.63	.846	BE (p. 297)
340	100	4.3	184.2	1.688	.757	BE (p. 299)
341	100	7	206.9	1.68	.826	OP
342	100	11	218.1	1.565	.831	OP

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data.

a. Honeycomb Insert #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
22	70	30	164.8	1.178	.722	OP
23	70	15	158.1	1.240	.823	OP
24	70	4	129.6	1.275	.758	OP
25	70	7	141.2	1.277	.814	OP
26	90	30	202.0	1.309	.725	OP
27	90	5.5	176.5	1.521	.776	OP
28	90	10	193.0	1.473	.822	OP
29	100	30	214.4	1.362	.690	OP
30	100	6.5	199.9	1.672	.784	OP
31	100	7	202.1	1.668	.795	BE (p. 302)
32	100	12	211.3	1.547	.784	BE (p. 304)
33	100	30	214.3	1.363	.698	BE (p. 306)

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data (Continued).

b. Honeycomb Insert #2 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
48	70	30	165.3	1.196	.797	OP
49	90	30	201.2	1.308	.731	OP
50	100	30	214.3	1.362	.703	OP
51	100	7.5	204.3	1.649	.786	BE (p. 308)
52	100	9	207.5	1.617	.797	BE (p. 310)
53	100	30	214.4	1.364	.708	BE (p. 312)
54	90	10	191.4	1.469	.825	OP
55	90	6.5	179.6	1.506	.797	OP
56	70	12.5	151.3	1.251	.844	OP
57	70	5	132.3	1.275	.777	OP
58	70	8	143.6	1.270	.819	OP

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data (Continued).

c. Circumferential Grooved Insert #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
82	70	30	165.1	1.196	.800	OP
83	70	12	150.6	1.251	.843	OP
84	70	8	140.7	1.266	.821	OP
85	90	30	199.7	1.307	.741	OP
86	90	10	191.0	1.465	.831	OP
87	90	8.5	186.6	1.486	.827	OP
88	100	30	212.9	1.360	.712	OP
89	100	8.5	206.5	1.619	.808	OP
90	100	9	207.1	1.611	.811	BE (p. 314)
91	100	11	209.7	1.563	.804	BE (p. 316)
92	100	15	212.1	1.485	.778	BE (p. 318)
93	100	30	213.2	1.363	.710	OP
94	90	15	197.7	1.401	.817	OP
95	90	12	194.3	1.437	.825	OP
96	70	15	157.2	1.238	.843	OP
97	70	10	147.1	1.258	.838	OP

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data (Continued).

d. Circumferential Grooved Insert #2 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
147	70	30	165.3	1.196	.795	OP
148	90	30	200.4	1.307	.734	OP
149	100	8.5	207.2	1.633	.813	BE (p. 320)
150	100	30	213.3	1.360	.706	BE (p. 322)
151	100	9.5	209.2	1.608	.812	BE (p. 324)
152	100	11	210.9	1.572	.806	OP
153	100	15	212.8	1.487	.781	OP
154	90	8	186.9	1.498	.826	OP
155	90	10	191.9	1.473	.834	OP
156	90	12	196.2	1.443	.832	OP
157	90	9	189.3	1.488	.833	OP
158	70	15	157.6	1.243	.848	OP
159	70	12.5	153.6	1.252	.846	OP
160	70	9	145.4	1.267	.833	OP
161	70	7.5	141.2	1.270	.821	OP

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data (Continued).

e. Circumferential Grooved Insert #3 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
214	70	30	163.5	1.197	.810	OP
215	70	7.7	139.0	1.266	.811	OP
216	70	10	145.7	1.261	.835	OP
217	70	12.5	151.8	1.250	.837	OP
218	70	15	155.6	1.238	.834	OP
219	90	30	198.5	1.309	.743	OP
220	90	12	193.6	1.439	.830	OP
221	90	10	190.7	1.465	.832	OP
222	90	8	183.6	1.489	.823	OP
223	100	30	211.9	1.363	.705	BE (p. 326)
224	100	9	204.9	1.608	.808	BE (p. 328)
225	100	8.5	205.1	1.620	.805	OP
226	100	11	207.6	1.563	.806	BE (p. 330)
227	100	15	211.3	1.488	.789	OP

** - OP - Overall Performance Reading
BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data (Continued).

f. Skewed Slotted Insert #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
100	70	30	166.7	1.199	.806	OP
101	70	4.5	134.4	1.291	.794	OP
102	70	8	144.2	1.281	.833	OP
103	70	12.5	155.2	1.256	.846	OP
104	70	15	158.4	1.244	.850	OP
105	90	30	203.1	1.315	.723	OP
106	90	5.2	177.5	1.548	.785	OP
107	90	12	197.5	1.457	.821	OP
108	90	10	194.6	1.488	.828	OP
109	90	8	188.1	1.519	.815	OP
110	100	30	215.7	1.369	.689	OP
111	100	6.5	202.2	1.690	.782	BE (p. 332)
112	100	9	209.9	1.634	.792	BE (p. 334)
113	100	11	212.6	1.576	.791	OP
114	100	15	214.8	1.493	.764	OP
115	100	30	215.3	1.370	.693	BE (p. 336)

** - OP - Overall Performance Reading
BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data (Continued).

g. Skewed Slotted Insert #3 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
245	70	30	165.3	1.198	.759	OP
246	70	15	155.4	1.239	.821	OP
247	70	10	148.1	1.264	.847	OP
248	70	6.5	138.0	1.276	.800	OP
249	90	30	202.0	1.316	.736	OP
250	90	15	199.0	1.415	.797	OP
251	90	10	191.9	1.478	.820	OP
252	90	8	186.5	1.505	.808	OP
253	100	30	215.9	1.373	.706	BE (p. 338)
254	100	11	211.8	1.578	.791	BE (p. 340)
255	100	8.2	207.0	1.646	.794	BE (p. 342)
256	100	15	214.5	1.498	.772	OP

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data (Continued).

h. Skewed Slotted Insert #4 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
19	70	30	165.8	1.200	.81	OP
20	70	12.5	153.4	1.256	.828	OP
21	70	5.9	137.1	1.283	.795	OP
22	70	10	149.1	1.268	.840	OP
23	70	15	156.3	1.244	.824	OP
24	90	30	202.5	1.321	.724	OP
25	90	15	199.4	1.422	.797	OP
26	90	10	193.6	1.490	.822	OP
27	90	5.6	178.2	1.545	.797	OP
28	90	8	188.0	1.521	.816	OP
29	100	30	216.0	1.374	.692	BE (p. 344)
30	100	11	212.7	1.583	.785	BE (p. 346)
31	100	9	209.1	1.637	.793	OP
32	100	7	203.5	1.684	.785	BE (p. 348)
33	100	15	214.5	1.504	.764	OP
34	70	10	149.8	1.269	.835	OP

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data (Continued).

i. Blade Angle Insert #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
270	70	30	165.5	1.199	.809	OP
271	70	15	156.2	1.242	.836	OP
272	70	10	147.6	1.266	.823	OP
273	70	4.5	131.6	1.279	.787	OP
275	90	15	197.5	1.406	.801	OP
276	90	10	190.5	1.465	.812	OP
277	90	5.5	174.4	1.515	.784	OP
278	90	30	201.2	1.315	.730	OP
279	100	30	214.2	1.367	.685	BE (p. 350)
280	100	7	201.7	1.658	.782	BE (p. 352)
281	100	11	212.0	1.568	.789	BE (p. 354)
282	100	15	213.4	1.488	.769	OP
283	70	10	147.5	1.264	.827	OP

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table V. Summary of Task I Stage Radial Distortion Test Data (Continued).

j. Blade Angle Slotted Insert #2 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
343	70	30	165.7	1.199	.805	OP
344	70	15	156.1	1.242	.814	OP
345	70	12.5	152.2	1.254	.820	OP
346	70	10	148.0	1.265	.823	OP
347	70	7	140.0	1.275	.812	OP
348	90	30	201.9	1.313	.731	OP
349	90	15	198.3	1.408	.796	OP
350	90	12.5	195.7	1.438	.823	OP
351	90	10	191.9	1.472	.816	OP
352	90	7	182.3	1.511	.800	OP
353	100	30	214.7	1.367	.679	BE (p. 356)
354	100	11	212.1	1.572	.789	BE (p. 358)
355	100	7.4	203.2	1.650	.780	BE (p. 360)
356	100	9	208.7	1.617	.787	OP
357	100	15	213.9	1.486	.764	OP

** - OP - Overall Performance Reading
BE - Blade Element Performance Reading

Table VI. Summary of Task I Stage Circumferential Distortion Test Data.
Skewed Slots #2 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point*	Distortion Screen Pos. From TDC
358	70	98.5	163.6	1.181	.751	OP	195
359	70	50	163.6	1.184	.755	OP	195
360	70	30	162.6	1.197	.785	OP	195
361	70	10	144.5	1.260	.831	OP	195
362	70	5	130.1	1.277	.778	OP	195
363	70	2	118.0	1.279	.719	OP	195
364	90	50	201.4	1.305	.740	OP	195
365	90	15	194.8	1.410	.834	OP	195
366	90	11	188.0	1.454	.838	OP	195
367	90	7.5	176.8	1.486	.816	OP	195
368	90	6	169.8	1.495	.795	OP	195
369	100	50	216.4	1.367	.728	OP	195
370	100	13	209.7	1.532	.825	OP	195
371	100	9.6	202.4	1.583	.822	OP	195
372	100	7.3	192.2	1.611	.788	OP	195
373	100	17	213.4	1.473	.805	OP	195
399	100	8	196.6	1.597	.797	OP	195
374	100	9.6	202.2	1.584	.828	OP	195
387	100	50	214.9	1.366	.730	OP	195
374-386	100	9.6	202.2	1.581	.805	SRT	195-165 (p. 377)
387-398	100	50	214.9	1.374	.728	SRT	195-165 (p. 364)

* - OP - Overall Performance Reading
SRT- Screen Rotating Test (12 Circumferential Distortion Screen Positions in 30° Intervals from 195° TDC)

Table VIII. Summary of Task II Stage Undistorted Inlet Test Data.
a. With Inlet Guide Vanes and Blade Angle Slots #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
418	70	30	170.4	1.195	.763	OP
419	70	23.3*	117.0	1.317	.698	OP
420	70	15	164.1	1.245	.828	OP
421	70	10	155.4	1.277	.833	OP
422	70	6	145.4	1.301	.816	OP
423	90	30	207.3	1.309	.690	OP
424	90	2.5	162.9	1.577	.716	OP
425	90	15	205.4	1.416	.791	OP
426	90	10	201.4	1.503	.826	OP
427	90	9	200.2	1.529	.838	OP
428	100	30	222.9	1.365	.664	OP
429	100	8	218.9	1.705	.821	OP
430	100	30	224.1	1.371	.665	BE (p. 384)
431	100	9	220.6	1.675	.825	BE (p. 387)
432	100	4	192.6	1.791	.737	BE (p. 390)

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - OP - Overall Performance Reading

BE - Blade Element Performance Reading

Table VIII. Summary of Task II Stage Undistorted Inlet Test Data (Continued).

b. Without Inlet Guide Vanes and with Blade Angle Slots #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
536	70	30	171.9	1.199	.787	OP
537	70	24.2*	119.8	1.323	.716	OP
538	90	9	201.5	1.536	.836	OP
539	90	3.6	173.2	1.601	.753	OP
540	90	7	195.8	1.577	.834	OP
541	90	15	208.8	1.428	.803	OP
542	90	30	208.5	1.314	.692	OP
543	100	30	226.2	1.383	.668	BE (p. 393)
544	70	15	165.7	1.251	.827	OP
545	70	11	160.1	1.279	.861	OP
546	70	6	145.8	1.305	.807	OP
547	100	15	224.9	1.507	.774	OP
548	100	9	221.4	1.676	.822	BE (p. 395)
549	90	9	201.0	1.539	.841	BE (p. 397)
550	90	5	187.6	1.642	.836	OP
551	70	2.5	131.5	1.313	.756	OP
552	100	7	218.5	1.755	.826	OP
553	100	3.7	190.9	1.806	.737	OP
554	100	4	195.2	1.814	.753	BE (p. 399)

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - OP - Overall Performance Reading

BE - Blade Element Performance Reading

Table VIII. Summary of Task II Stage Undistorted Inlet Test Data (Continued).

c. Without Inlet Guide Vanes and Without Blade Angle Slots #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
586	70	30	173.6	1.199	.804	OP
587	70	10	157.7	1.281	.861	OP
588	70	2	129.8	1.318	.768	OP
589	90	30	209.7	1.319	.712	OP
590	90	5.2	184.6	1.603	.823	OP
591	90	8.5	200.1	1.549	.851	OP
592	90	12	206.5	1.475	.839	OP
593	100	30	224.6	1.374	.681	BE (p. 401)
594	100	6	212.6	1.788	.825	BE (p. 403)
595	100	8	221.2	1.722	.845	BE (p. 405)
596	100	15	224.3	1.513	.798	OP
597	100	10	222.9	1.644	.839	OP
598	100	9	223.0	1.680	.843	OP
599	100	6.6	226.3	1.859	.911	OP
600	90	9.8	203.2	1.516	.848	OP
601	90	6.6	193.3	1.577	.838	OP
602	70	15	165.3	1.248	.851	OP
603	70	8	152.9	1.293	.844	OP
604	70	4	138.1	1.312	.804	OP
605	70	11.4	160.0	1.270	.861	OP
(continued)						
<p>** - OP - Overall Performance Reading BE - Blade Element Performance Reading</p>						

Table VIII. Summary of Task II Stage Undistorted Inlet Test Data (Concluded).

c. Without Inlet Guide Vanes and Without Blade Angle Slots #1 Casing Treatment (Concluded).

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
642	100	6	210.5	1.778	.820	BE (p. 407)
643	100	8	218.3	1.716	.840	BE (p. 409)
644	100	6.6	213.1	1.759	.828	OP
645	100	9	220.6	1.680	.843	BE (p. 411)
646	100	10	221.8	1.645	.837	BE (p. 413)
647	100	12	223.0	1.585	.825	OP

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table IX. Summary of Task II Stage Radial Distortion Test Data.

a. With Inlet Guide Vanes and Blade Angle Slots #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
433	70	30	168.9	1.214	.775	OP
434	70	4	134.2	1.309	.764	OP
435	70	14	159.6	1.265	.812	OP
436	90	30	203.3	1.328	.698	OP
437	90	5.1	179.0	1.574	.758	OP
438	90	10.8	197.2	1.491	.788	OP
439	100	30	215.5	1.380	.660	BE (p. 416)
440	100	6	204.0	1.732	.755	BE (p. 419)
441	100	10	212.3	1.618	.763	BE (p. 422)
442	100	12	213.5	1.571	.752	OP
443	90	8	192.2	1.541	.801	OP
444	70	11	155.0	1.282	.815	OP

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table IX. Summary of Task II Stage Radial Distortion Test Data (Continued).

b. Without Inlet Guide Vanes and with Blade Angle Slots #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
555	70	30	169.8	1.217	.779	OP
556	70	14	161.9	1.269	.824	OP
557	70	5.2	140.3	1.313	.792	OP
558	90	30	203.8	1.329	.697	OP
559	90	10.3	198.4	1.505	.797	OP
560	90	6.3	186.5	1.569	.781	OP
561	100	30	216.3	1.384	.658	BE (p. 425)
562	100	10.5	213.6	1.612	.758	BE (p. 427)
563	100	6.5	206.8	1.728	.757	BE (p. 429)
564	100	8	210.0	1.685	.768	OP
565	100	11.2	214.1	1.592	.756	OP
566	90	9.2	194.9	1.527	.797	OP
568	70	11	156.6	1.286	.813	OP
569	70	8	150.2	1.304	.809	OP

** - OP - Overall Performance Reading

BE - Blade Element Performance Reading

Table IX. Summary of Task II Stage Radial Distortion Test Data (Concluded).

c. Without Inlet Guide Vanes and Without Blade Angle Slots #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point**
571	70	14	161.6	1.269	.816	OP
572	70	30	171.1	1.216	.784	OP
573	70	9.3	152.4	1.293	.817	OP
574	90	30	203.8	1.327	.695	OP
575	90	10.5	198.5	1.494	.795	OP
576	100	30	218.8	1.388	.676	BE (p. 431)
577	100	10.5	214.4	1.613	.772	BE (p. 433)
578	100	12.3	216.8	1.575	.773	BE (p. 435)
579	100	14	217.5	1.541	.761	OP
580	100	11.1	214.1	1.601	.770	OP
581	90	15	202.4	1.432	.769	OP
582	90	13.3	201.3	1.454	.783	OP
583	90	12	199.3	1.470	.788	OP
584	70	15	162.8	1.264	.807	OP
585	70	11	156.1	1.283	.821	OP

** - OP - Overall Performance Reading
 BE - Blade Element Performance Reading

Table X. Summary of Task II Stage Circumferential Distortion Test Data.

a. With Inlet Guide Vanes and with Blade Angle Slots #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point*	Distortion Screen Pos. From TDC
406	70	30	167.8	1.220	.774	OP	195
407	90	30	207.0	1.357	.732	OP	195
408	90	4.5	172.1	1.579	.759	OP	195
409	90	11	198.9	1.505	.818	OP	195
410	90	13	201.8	1.476	.806	OP	195
411	100	30	222.0	1.422	.714	OP	195
412	100	6.3	199.3	1.709	.776	OP	195
413	100	10	213.9	1.642	.808	OP	195
414	100	12	217.7	1.600	.802	OP	195
415	70	11	155.1	1.286	.818	OP	195
416	70	25.7*	116.6	1.311	.689	OP	195
417	70	13	158.0	1.274	.812	OP	195
457	100	7.3	205.2	1.699	.802	OP	195
471	70	11	153.7	1.283	.810	OP	195
445-456	100	30	220.3	1.411	.716	SRT	195-165 (p. 450)
457-468	100	7.3	205.2	1.685	.774	SRT	195-165 (p. 435)
471-483	70	11	153.7	1.274	.843	SRT	195-165 (p. 462)

* - Indicates discharge valve position with inner annulus discharge pipe closed.

** - Overall Performance Reading

SRT- Screen Rotating Test (12 Circumferential Distortion Screen Positions in 30° Intervals from 195° TDC)

Table X. Summary of Task II Stage Circumferential Distortion Test Data (Continued).

b. Without Inlet Guide Vanes and with Blade Angle Slots #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point*	Distortion Screen Pos. From TDC
484	70	30	168.1	1.213	.760	OP	195
485	70	20	165.7	1.232	.785	OP	195
486	70	13	157.8	1.266	.800	OP	195
487	70	11	155.1	1.277	.802	OP	195
500	70	1.0	120.7	1.314	.693	OP	195
501	90	30	209.2	1.367	.750	OP	195
502	90	20	208.0	1.403	.778	OP	195
503	90	13	202.0	1.472	.810	OP	195
504	90	11	198.1	1.499	.819	OP	195
505	90	7	185.9	1.551	.806	OP	195
506	90	9	193.3	1.526	.815	OP	195
507	100	30	225.2	1.435	.736	OP	195
519	100	12.5	219.5	1.591	.806	OP	195
520	100	10	214.8	1.642	.819	OP	195
521	100	11	217.4	1.616	.808	OP	195
523	70	8	148.2	1.297	.808	OP	195
524	70	5	138.5	1.311	.778	OP	195
648	100	7	200.9	1.693	.776	OP	195
649	100	8.5	207.6	1.665	.796	OP	195
650	100	11	213.6	1.610	.808	OP	195
651	90	5.2	174.8	1.561	.764	OP	195
652	90	11	196.5	1.493	.818	OP	195
653	90	13	199.0	1.464	.807	OP	195
488-499	70	11	154.8	1.274	.829	SRT	195-165 (p. 492)
507-518	100	30	225.3	1.438	.719	SRT	195-165 (p. 483)
521-534	100	11	217.4	1.617	.789	SRT	195-165 (p. 474)

* - OP - Overall Performance Reading

SRT- Screen Rotating Test (12 Circumferential Distortion Screen Positions in 30° Intervals from 195° TDC)

Table X. Summary of Task II Stage Circumferential Distortion Test Data (Concluded).

c. Without Inlet Guide Vanes and Without Blade Angle Slots #1 Casing Treatment.

Reading Number	Percent Design Speed	Discharge Valve Setting	Inlet Corrected Weight Flow, Lbs/Sec	Stage Total-Pressure Ratio	Stage Adiabatic Efficiency	Type Point*	Distortion Screen Pos. From TDC
606	70	30	168.1	1.210	.773	OP	195
607	70	11	154.3	1.275	.813	OP	195
608	70	4.3	135.4	1.310	.771	OP	195
609	70	13	157.4	1.266	.806	OP	195
610	90	30	206.7	1.370	.752	OP	195
611	90	11	197.7	1.495	.831	OP	195
612	90	7.2	185.5	1.543	.811	OP	195
613	100	30	221.7	1.420	.742	OP	195
614	100	12	217.0	1.598	.823	OP	195
615	100	9.5	212.9	1.645	.817	OP	195
627	100	9	209.4	1.652	.805	OP	195
628	100	30	222.5	1.426	.753	OP	195
640	100	10	211.7	1.631	.807	OP	195
641	90	13	199.6	1.463	.810	OP	195
615-626	100	9.5	212.9	1.647	.804	SRT	195-165 (p. 501)
628-639	100	30	222.6	1.430	.733	SRT	195-165 (p. 510)

* - OP - Overall Performance Reading
 SRT- Screen Rotating Test (12 Circumferential Distortion Screen Positions in 30° Intervals from 195° TDC)

APPENDIX C

LISTING OF TASK I STAGE UNDISTORTED
INLET BLADE ELEMENT DATA

Table XII. Symbols for Blade Element Output.

		INLET GUIDE VANES										BLADE ELEMENT PERFORMANCE RESULTS										OVERALL PERFORMANCE SUMMARY																								
		POINT NUMBER					READING NUMBER					DATE					/ / 1970					STAGE DATA					IGV DATA																			
		CHBR LN					INCID ANG					SUCTION SURF					INLET ABS					INLET REL					FIXED INST.					TRAV. INST.														
		LE ANGLE					MN CMBR LN					LN					VELOCITY					VELOCITY					P _{2,20} /P _{0,18}					P _{0,95} /P _{0,18}														
		*M/A					θ ₁					i					M/A					V ₁					M/A					V _{θ1}					M/A									
		REL INLET					ABS EXIT					CHBR LN					DEV					TURN					EXIT ABS					EXIT REL					EXIT ABS					EXIT REL				
		FLOW ANG					FLOW ANG					TE ANGLE					ANG TE					ANGLE					VELOCITY					VELOCITY					TANG VEL					TANG VEL				
		*M/A					θ ₁					*θ ₁					θ					Δθ					V ₂					M/A					V _{θ2}					M/A				
		ROTOR SPD					INLET ABS					INLET REL					AXIAL VEL					TRAV LOSS					IR TL PRESS					DIFFUSION					FACTOR									
		AT INLET					MACH NO					MACH NO					RATIO					COEFF					LOSS PARAM					CH1														
		M/A					M ₁					M/A					V _{z2}					ω					ω Cos θ ₂					D					C _L									
		ROTOR SPD					EXIT ABS					EXIT REL					SOLIDITY					PERCENT					IMMERSION					PERFORM					PARAMETERS									
		AT EXIT					MACH NO					MACH NO					σ					TRAV TOT					FIXED TOT					FIXED TOT					TEMP RATIO									
		M/A					M ₂					M/A					σ					P _{0,95}					P _{0,18}					T _{0,95}					T _{0,18}									
		PERCENT					PRESS RATIO					PRESS RATIO					PRESS RATIO					TEMP RATIO					TEMP RATIO					TEMP RATIO					TEMP RATIO									
		5.0000					P _{0,95}					P _{0,18}					P _{0,95}					P _{0,18}					T _{0,95}					T _{0,18}					T _{0,95}					T _{0,18}				
		10.0000					P _{0,95}					P _{0,18}					P _{0,95}					P _{0,18}					T _{0,95}					T _{0,18}					T _{0,95}					T _{0,18}				
		30.0000					P _{0,95}					P _{0,18}					P _{0,95}					P _{0,18}					T _{0,95}					T _{0,18}					T _{0,95}					T _{0,18}				
		50.0000					P _{0,95}					P _{0,18}					P _{0,95}					P _{0,18}					T _{0,95}					T _{0,18}					T _{0,95}					T _{0,18}				
		70.0000					P _{0,95}					P _{0,18}					P _{0,95}					P _{0,18}					T _{0,95}					T _{0,18}					T _{0,95}					T _{0,18}				
		90.0000					P _{0,95}					P _{0,18}					P _{0,95}					P _{0,18}					T _{0,95}					T _{0,18}					T _{0,95}					T _{0,18}				
		95.0000					P _{0,95}					P _{0,18}					P _{0,95}					P _{0,18}					T _{0,95}					T _{0,18}					T _{0,95}					T _{0,18}				
RADIAL POSITION																																														
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RADIAL POSITION																																														
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2																																														
3																																														
4																																														
5																																														
6																																														
7																																														

*Not Applicable

Table XII. Symbols for Blade Element Output (Continued).

		ROTOR BLADE ROW													
		BLADE ELEMENT PERFORMANCE RESULTS													
		READING NUMBER												DATE / /1970	
		POINT NUMBER													
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHMR LN LE ANGLE	INCID ANG	INCID ANG	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET REL V ₀₁			
1	θ_1'	θ_1	α_1^0	i	i _{ss}	V ₁	V ₁	V _{z1}	V ₀₁	V ₀₁	V ₀₁				
2															
3															
4															
5															
6															
7															
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHMR LN TE ANGLE	REL DEV ANG TE	REL TRN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT REL V ₀₂				
1	θ_2'	θ_2	α_2^0	δ^0	$\Delta\theta'$	V ₂	V ₂	V _{z2}	V ₀₂	V ₀₂	V ₀₂				
2															
3															
4															
5															
6															
7															
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO											
1	U ₁	M ₁	M ₁	$\frac{V_{z2}}{V_{z1}}$											
2															
3															
4															
5															
6															
7															
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS	LOSS	LOSS	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF				
1	U ₂	M ₂	M ₂	$\bar{\omega}$	$\bar{\omega}'$	$\bar{\omega}'$	$\frac{\bar{\omega}' \cos \theta_2'}{2\sigma}$	η_{ad}	η_{ad}	η_p	η_p				
2															
3															
4															
5															
6															
7															
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO										
1	5.0000	$\frac{P_{1.51}}{P_{0.95}}$	$\frac{T_{1.51}}{T_{0.95}}$	$\frac{P_{1.51}}{P_{0.95}}$	$\frac{T_{1.51}}{T_{0.95}}$										
2	10.0000														
3	30.0000														
4	50.0000														
5	70.0000														
6	90.0000														
7	95.0000														

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 P 2.20/P 0.18 P 1.51/P 0.95 P 1.51/P 0.95
 η_{ad} η_{ad} η_{ad}
 η_p η_p η_p
 Discharge Valve Setting =

PERFORMANCE PARAMETERS
 Total Pressure Ratio = $\frac{P_{1.51}}{P_{0.95}}$
 Adiabatic Efficiency = $\frac{T_{1.51}}{T_{0.95}}$
 Polytropic Efficiency = $\frac{P_{1.51}}{P_{0.95}}$
 Percent Design Speed = $\frac{W}{W_0} \sqrt{\frac{\rho}{\rho_0}}$
 Cor. Nozzle Weight Flow = $W_0 \sqrt{\frac{\rho}{\rho_0}}$

LE Check Flow/Noz.Flow =
 Assumed LE Flow Coeff. =

TE Check Flow/Noz.Flow =
 Assumed TE Flow Coeff. =

Table XII. Symbols for Blade Element Output (Concluded).

STATOR BLADE 304															
BLADE ELEMENT PERFORMANCE RESULTS															
POINT NUMBER BLADE ELEMENT PERFORMANCE RESULTS DATE / /1970															
READING NUMBER															
RADIAL POSITION	REF INLET FLOW ANG	ABS INLET FLOW ANG	CMBK LN LE ANGLE	INCID ANG	INCID LN	INCID ANG	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL			
1															
2															
3															
4															
5															
6															
7															
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBK LN LE ANGLE	DEV ANGLE	TJRN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL					
1															
2															
3															
4															
5															
6															
7															
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO											
1															
2															
3															
4															
5															
6															
7															
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS	TOY PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY MEAS	STAT PRESS RISE COEFF						
1															
2															
3															
4															
5															
6															
7															
PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEAR RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEAR RATIO	FIXED TOT TEMP RATIO										
1															
2															
3															
4															
5															
6															
7															

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 $P_{2.20}/P_{0.18}$ $P_{2.20}/P_{1.51}$ $P_{2.20}/P_{1.51}$

PERFORMANCE PARAMETERS
 Total Pressure Ratio = $\frac{P_{2.2}}{P_{1.51}}$
 Polytropic Efficiency = $\frac{T_{2.2}}{T_{1.51}}$
 Percent Design Speed = $\frac{N}{N_p}$
 Cor. Nozzle Weight Flow = $\frac{W}{W_p}$

Discharge Valve Setting = _____

TE Check Flow/Noz.Flow = _____
 Assumed TE Flow Coeff. = _____

IE Check Flow/Noz.Flow = _____
 Assumed IE Flow Coeff. = _____

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA

		ROTOR BLADE ROW # NASA TASK IV																				
		BLADE ELEMENT PERFORMANCE RESULTS																				
		POINT NUMBER	14	READING NUMBER	15	DATE	6/	4/	19/	70												
RADIAL POSITION	1	REL INLET FLOW ANG	66.47	CHBR LN LE ANGLE	60.60	INCID ANS	7.67	INCID ANG	5.17	INLET ABS VELOCITY	1489.23	INLET REL VELOCITY	546.06	INLET AX VELOCITY	546.06	INLET ABS TANG VEL	224.87	INLET REL TANG VEL	224.87	INLET REL TANG VFL	2383.44	
	2	REL INLET FLOW ANG	66.07	CHBR LN LE ANGLE	59.64	INCID ANS	7.26	INCID ANG	4.23	INLET ABS VELOCITY	1389.15	INLET REL VELOCITY	576.89	INLET AX VELOCITY	576.89	INLET ABS TANG VEL	217.14	INLET REL TANG VEL	217.14	INLET REL TANG VFL	1350.70	
	3	REL INLET FLOW ANG	60.71	CHBR LN LE ANGLE	56.01	INCID ANS	4.70	INCID ANG	0.24	INLET ABS VELOCITY	679.71	INLET REL VELOCITY	679.71	INLET AX VELOCITY	679.71	INLET ABS TANG VEL	334.66	INLET REL TANG VEL	334.66	INLET REL TANG VFL	1211.56	
	4	REL INLET FLOW ANG	59.73	CHBR LN LE ANGLE	52.56	INCID ANS	7.17	INCID ANG	1.33	INLET ABS VELOCITY	646.68	INLET REL VELOCITY	643.87	INLET AX VELOCITY	643.87	INLET ABS TANG VEL	334.66	INLET REL TANG VEL	334.66	INLET REL TANG VFL	1103.10	
	5	REL INLET FLOW ANG	57.31	CHBR LN LE ANGLE	49.74	INCID ANS	7.40	INCID ANG	0.62	INLET ABS VELOCITY	635.30	INLET REL VELOCITY	627.11	INLET AX VELOCITY	627.11	INLET ABS TANG VEL	232.74	INLET REL TANG VEL	232.74	INLET REL TANG VFL	967.45	
	6	REL INLET FLOW ANG	58.83	CHBR LN LE ANGLE	47.41	INCID ANS	8.42	INCID ANG	0.76	INLET ABS VELOCITY	583.12	INLET REL VELOCITY	587.28	INLET AX VELOCITY	587.28	INLET ABS TANG VEL	224.14	INLET REL TANG VEL	224.14	INLET REL TANG VFL	811.65	
	7	REL INLET FLOW ANG	58.84	CHBR LN LE ANGLE	46.13	INCID ANS	9.41	INCID ANG	1.51	INLET ABS VELOCITY	546.72	INLET REL VELOCITY	532.77	INLET AX VELOCITY	532.77	INLET ABS TANG VEL	-13.40	INLET REL TANG VEL	-13.40	INLET REL TANG VFL	756.72	
RADIAL POSITION	1	REL EXIT FLOW ANG	49.41	CHBR LN LE ANGLE	54.80	REL DEV	0.26	REL TURN ANGLE	15.36	EXIT ABS VELOCITY	795.23	EXIT REL VELOCITY	909.04	EXIT AX VELOCITY	519.13	EXIT ABS TANG VEL	600.18	EXIT REL TANG VEL	600.18	EXIT REL TANG VFL	744.43	
	2	REL EXIT FLOW ANG	47.27	CHBR LN LE ANGLE	54.72	REL DEV	70.85	REL TURN ANGLE	32.49	EXIT ABS VELOCITY	783.74	EXIT REL VELOCITY	912.24	EXIT AX VELOCITY	530.79	EXIT ABS TANG VEL	575.05	EXIT REL TANG VEL	575.05	EXIT REL TANG VFL	740.49	
	3	REL EXIT FLOW ANG	49.03	CHBR LN LE ANGLE	50.68	REL DEV	3.08	REL TURN ANGLE	6.99	EXIT ABS VELOCITY	725.94	EXIT REL VELOCITY	895.13	EXIT AX VELOCITY	475.90	EXIT ABS TANG VEL	548.05	EXIT REL TANG VEL	548.05	EXIT REL TANG VFL	649.31	
	4	REL EXIT FLOW ANG	48.49	CHBR LN LE ANGLE	43.79	REL DEV	4.70	REL TURN ANGLE	11.23	EXIT ABS VELOCITY	725.42	EXIT REL VELOCITY	679.49	EXIT AX VELOCITY	450.24	EXIT ABS TANG VEL	568.69	EXIT REL TANG VEL	568.69	EXIT REL TANG VFL	506.81	
	5	REL EXIT FLOW ANG	54.43	CHBR LN LE ANGLE	32.15	REL DEV	10.43	REL TURN ANGLE	14.54	EXIT ABS VELOCITY	710.35	EXIT REL VELOCITY	581.49	EXIT AX VELOCITY	412.69	EXIT ABS TANG VEL	577.15	EXIT REL TANG VEL	577.15	EXIT REL TANG VFL	379.19	
	6	REL EXIT FLOW ANG	54.82	CHBR LN LE ANGLE	14.29	REL DEV	16.48	REL TURN ANGLE	28.76	EXIT ABS VELOCITY	724.68	EXIT REL VELOCITY	486.95	EXIT AX VELOCITY	415.29	EXIT ABS TANG VEL	589.25	EXIT REL TANG VEL	589.25	EXIT REL TANG VFL	247.24	
	7	REL EXIT FLOW ANG	56.64	CHBR LN LE ANGLE	8.00	REL DEV	9.96	REL TURN ANGLE	37.58	EXIT ABS VELOCITY	601.94	EXIT REL VELOCITY	469.81	EXIT AX VELOCITY	437.90	EXIT ABS TANG VEL	669.24	EXIT REL TANG VEL	669.24	EXIT REL TANG VFL	141.93	
RADIAL POSITION	1	ROTOR SPD AT INLET	158.97	INLET REL MACH NO	1.358	AXIAL VEL RATIO	0.952														CHI	
	2	ROTOR SPD AT INLET	184.81	INLET REL MACH NO	1.358	AXIAL VEL RATIO	0.952															
	3	ROTOR SPD AT INLET	189.82	INLET REL MACH NO	1.345	AXIAL VEL RATIO	0.928															
	4	ROTOR SPD AT INLET	106.44	INLET REL MACH NO	1.182	AXIAL VEL RATIO	0.699															
	5	ROTOR SPD AT INLET	95.31	INLET REL MACH NO	1.078	AXIAL VEL RATIO	0.668															
	6	ROTOR SPD AT INLET	78.91	INLET REL MACH NO	1.018	AXIAL VEL RATIO	0.745															
	7	ROTOR SPD AT INLET	742.83	INLET REL MACH NO	0.855	AXIAL VEL RATIO	0.844															
RADIAL POSITION	1	ROTOR SPD AT EXIT	184.81	EXIT REL MACH NO	0.748	SOLIDITY RATIO	1.3340	LOSS EFFICIENCY	0.253	VOY PRESS LBSS PARAM	0.054	ADBB EFFICIENCY	0.7450	POLY EFFICIENCY	0.7660	MEAS T. RISE	0.356	STAT PRESS COEFF	0.356			
	2	ROTOR SPD AT EXIT	185.74	EXIT REL MACH NO	0.757	SOLIDITY RATIO	1.3690	LOSS EFFICIENCY	0.249	VOY PRESS LBSS PARAM	0.053	ADBB EFFICIENCY	0.7486	POLY EFFICIENCY	0.7691	MEAS T. RISE	0.375	STAT PRESS COEFF	0.375			
	3	ROTOR SPD AT EXIT	197.35	EXIT REL MACH NO	0.678	SOLIDITY RATIO	1.5880	LOSS EFFICIENCY	0.154	VOY PRESS LBSS PARAM	0.030	ADBB EFFICIENCY	0.8348	POLY EFFICIENCY	0.8475	MEAS T. RISE	0.483	STAT PRESS COEFF	0.483			
	4	ROTOR SPD AT EXIT	107.90	EXIT REL MACH NO	0.614	SOLIDITY RATIO	1.6840	LOSS EFFICIENCY	0.158	VOY PRESS LBSS PARAM	0.031	ADBB EFFICIENCY	0.8392	POLY EFFICIENCY	0.8508	MEAS T. RISE	0.529	STAT PRESS COEFF	0.529			
	5	ROTOR SPD AT EXIT	95.35	EXIT REL MACH NO	0.479	SOLIDITY RATIO	1.9060	LOSS EFFICIENCY	0.112	VOY PRESS LBSS PARAM	0.022	ADBB EFFICIENCY	0.8876	POLY EFFICIENCY	0.8952	MEAS T. RISE	0.609	STAT PRESS COEFF	0.609			
	6	ROTOR SPD AT EXIT	83.49	EXIT REL MACH NO	0.420	SOLIDITY RATIO	2.2170	LOSS EFFICIENCY	0.139	VOY PRESS LBSS PARAM	0.026	ADBB EFFICIENCY	0.8876	POLY EFFICIENCY	0.8949	MEAS T. RISE	0.733	STAT PRESS COEFF	0.733			
	7	ROTOR SPD AT EXIT	607.17	EXIT REL MACH NO	0.405	SOLIDITY RATIO	2.3390	LOSS EFFICIENCY	0.201	VOY PRESS LBSS PARAM	0.041	ADBB EFFICIENCY	0.8533	POLY EFFICIENCY	0.8627	MEAS T. RISE	0.859	STAT PRESS COEFF	0.859			
RADIAL POSITION	1	PERCENT PRESS RATIO	5.0000	TRAV TOT PRESS RATIO	1.926	FIXED TOY PRESS RATIO	1.856	FIXED TOT TEMP RATIO	1.260													
	2	PERCENT PRESS RATIO	10.0000	TRAV TOT PRESS RATIO	1.839	FIXED TOY PRESS RATIO	1.839	FIXED TOT TEMP RATIO	1.254													
	3	PERCENT PRESS RATIO	50.0000	TRAV TOT PRESS RATIO	1.804	FIXED TOY PRESS RATIO	1.771	FIXED TOT TEMP RATIO	1.213													
	4	PERCENT PRESS RATIO	70.0000	TRAV TOT PRESS RATIO	1.747	FIXED TOY PRESS RATIO	1.705	FIXED TOT TEMP RATIO	1.196													
	5	PERCENT PRESS RATIO	90.0000	TRAV TOT PRESS RATIO	1.669	FIXED TOY PRESS RATIO	1.639	FIXED TOT TEMP RATIO	1.171													
	6	PERCENT PRESS RATIO	90.0000	TRAV TOT PRESS RATIO	1.637	FIXED TOY PRESS RATIO	1.610	FIXED TOT TEMP RATIO	1.164													
	7	PERCENT PRESS RATIO	99.0000	TRAV TOT PRESS RATIO	1.748	FIXED TOY PRESS RATIO	1.602	FIXED TOT TEMP RATIO	1.169													

OVERALL PERFORMANCE SUMMARY

		STAGE DATA		ROTOR DATA		ROTOR DATA	
		FIXED INST.	FIXED INST.	TRAV. INST.	TRAV. INST.	TRAV. INST.	TRAV. INST.
PERFORMANCE PARAMETERS	=	1.6970	1.7420	1.7798			
Total Pressure Ratio	=	0.7746	0.8161	0.8487			
Adiabatic Efficiency	=	0.7907	0.8298	0.8604			
Polytropic Efficiency	=						
Percent Design Speed	=	100.1					
Cor. Nozzle Weight Flow	=	190.8					
Discharge Valve Setting= 5.0							

IE Check Flow/Noz.Flow = 1.0454 TE Check Flow/Noz.Flow = 0.9678
 Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW # NASA TASK ID												
		BLADE ELEMENT PERFORMANCE RESULTS					BLADE ELEMENT PERFORMANCE RESULTS							
		POINT NUMBER	14	15	16	17	18	19	20	21	22	DATE		
		6/4/1970												
RADIAL POSITION		ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MW CHBR LN	INCID ANG BUGY SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET AX TANG VEL			
1		48.95	39.47	9.48	798.70	524.49	524.49	524.49	602.35	602.35	602.35			
2		46.71	39.11	7.60	795.86	533.61	533.61	533.61	577.14	577.14	577.14			
3		47.21	39.01	8.20	746.34	506.82	506.82	506.82	547.52	547.52	547.52			
4		49.34	39.00	9.34	743.16	483.04	483.04	483.04	563.04	563.04	563.04			
5		52.03	40.86	11.17	718.97	440.99	440.99	440.99	564.95	564.95	564.95			
6		52.42	42.22	10.20	721.25	437.17	437.17	437.17	568.13	568.13	568.13			
7		54.27	42.76	11.51	791.67	459.52	459.52	459.52	638.69	638.69	638.69			
RADIAL POSITION		ABS EXIT FLOW ANG	CHBR LN LE ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT AX TANG VEL			
1		1.82	51.13	12.98	47.14	617.90	617.90	617.90	19.57	19.57	19.57			
2		4.01	51.00	14.14	42.78	634.28	634.28	634.28	44.46	44.46	44.46			
3		0.39	50.87	9.78	46.83	573.42	573.42	573.42	3.85	3.85	3.85			
4		-0.60	50.75	8.15	49.94	506.17	506.17	506.17	-5.29	-5.29	-5.29			
5		-1.49	50.10	7.61	53.54	438.65	438.65	438.65	-11.36	-11.36	-11.36			
6		7.01	51.58	17.59	45.48	409.34	409.34	409.34	49.83	49.83	49.83			
7		-5.73	51.36	6.63	60.08	381.29	381.29	381.29	-37.97	-37.97	-37.97			
RADIAL POSITION		INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	TURN ANGLE	LOSS COEFFICIENT	LOSS PARAM	POLY WAGEN RISE/STAY PRESS EFFICIENCY	DIFFUSION FACTOR	CM1				
1		0.657	1.177	1.177	47.14	0.152	0.030	0.177	0.466	0.193				
2		0.659	1.168	1.168	42.78	0.163	0.033	0.195	0.415	0.212				
3		0.630	1.131	1.131	46.83	0.166	0.032	0.245	0.454	0.263				
4		0.631	1.046	1.046	49.94	0.166	0.038	0.245	0.537	0.357				
5		0.614	0.992	0.992	53.54	0.164	0.022	0.335	0.601	0.472				
6		0.619	0.926	0.926	45.48	0.163	0.025	0.449	0.604	0.472				
7		0.682	0.823	0.823	60.08	0.174	0.017	0.495	0.719	0.426				
RADIAL POSITION		EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	SPACE DATA	STATOR DATA	STATOR DATA				
1		0.906	1.5238	1.5238	1.008	1.008	1.6970	FIXED INST.	FIXED INST.	TRAV. INST.				
2		0.923	1.5440	1.5440	1.008	1.008	1.6970	0.9742	0.9742	0.9557				
3		0.477	1.6518	1.6518	1.008	1.008	0.7907	0.9929	0.9929	0.8172				
4		0.422	1.7420	1.7420	1.008	1.008	100.1	Discharge Valve Setting=5.0						
5		0.368	1.8808	1.8808	1.008	1.008	190.8							
6		0.344	2.0518	2.0518	1.008	1.008	TE Check Flow/Noz.Flow = 0.9729							
7		0.319	2.0980	2.0980	1.008	1.008	Assumed IE Flow Coeff. = 0.9550							
RADIAL POSITION		PERCENT INGESTION	PERCENT INGESTION	PERCENT INGESTION	PERCENT INGESTION	PERCENT INGESTION	PERCENT INGESTION	PERCENT INGESTION	PERCENT INGESTION	PERCENT INGESTION	PERCENT INGESTION	PERCENT INGESTION		
1		8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000	8.0000		
2		10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000		
3		30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000		
4		50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000		
5		90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000		
6		98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000		
7														

OVERALL PERFORMANCE SUMMARY

PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6970
 Polytropic Efficiency = 0.9742
 Percent Design Speed = 100.1
 Cor. Nozzle Weight Flow = 190.8

SPACE DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.6970 0.9742 0.9557
 0.7907 0.9929 0.8172

Discharge Valve Setting=5.0

TE Check Flow/Noz.Flow = 0.9729
 Assumed IE Flow Coeff. = 0.9550

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TABLE XII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW 3 NASA TASK 19		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 15		READING NUMBER 16		DATE 62 471970		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG MB CMR LN	INCLD ANG MB CMR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	63.63	0.43	60.60	3.03	3.03	676.69	513.16	671.48	5.07	135.55
2	60.87	0.44	59.61	1.26	1.26	740.48	1317.51	737.87	9.64	1324.02
3	54.66	0.66	56.01	73.15	73.15	837.88	1455.66	837.88	9.62	1196.38
4	52.91	0.83	52.56	40.05	40.05	821.95	1348.08	819.58	0.46	1068.49
5	50.41	-0.95	49.71	0.70	0.70	795.80	1338.20	784.73	-12.08	946.74
6	50.86	-1.48	47.11	3.53	3.53	687.80	1057.53	859.84	-17.01	804.90
7	50.83	-1.90	46.13	4.50	4.50	649.91	994.56	617.68	-9.72	752.90
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN FE ANGLE	REL DEV ANG TB	REL YURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	56.69	40.56	54.70	0.69	5.14	713.52	838.83	540.83	462.91	882.35
2	58.02	38.92	57.42	3.60	2.85	703.77	1032.69	946.50	441.24	876.13
3	53.21	41.32	50.68	2.43	3.79	781.38	902.70	541.64	476.17	721.76
4	49.40	42.99	43.79	5.61	3.32	782.31	789.37	513.60	478.77	590.24
5	43.87	44.49	38.15	9.22	4.03	727.13	885.71	513.56	504.44	452.36
6	33.85	48.01	18.29	13.26	17.10	710.87	572.80	471.69	524.07	312.83
7	23.87	52.80	9.00	18.87	28.76	783.53	516.12	469.76	618.96	188.60
RADIAL POSITION	REL INLET MACH NO	ABS INLET MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOY PRESS LOSS	ADD EFFICIENCY	POLY EFFICIENCY	HOMEN RISE	STAT PRESS RISE
1	0.627	0.865	1.403	0.809	0.172	0.034	0.7993	0.8054	0.428	0.470
2	0.592	0.741	1.418	0.647	0.142	0.031	0.7998	0.8140	0.424	0.407
3	0.793	0.647	1.377	0.627	0.115	0.023	0.8562	0.8665	0.486	0.587
4	0.775	0.627	1.272	0.654	0.043	0.022	0.8602	0.8696	0.520	0.632
5	0.749	0.654	1.166	0.715	0.043	0.015	0.9481	0.9515	0.557	0.666
6	0.639	0.593	0.983	0.715	0.042	0.015	0.9210	0.9250	0.577	0.680
7	0.602	0.602	0.921	0.761	0.092	0.016	0.9216	0.9267	0.622	0.714
RADIAL POSITION	REL INLET MACH NO	ABS INLET MACH NO	EXIT REL MACH NO	TEMP RATIO	FIXED TOY PRESS RATIO	TRAV TOY PRESS RATIO	FIXED TOY PRESS RATIO	TEMP RATIO	FIXED TOY PRESS RATIO	TEMP RATIO
1	0.596	0.596	0.865	1.732	1.223	1.708	1.207	1.708	1.207	1.708
2	0.596	0.596	0.874	1.692	1.190	1.692	1.208	1.692	1.190	1.692
3	0.615	0.601	0.769	1.662	1.178	1.662	1.176	1.662	1.176	1.662
4	0.621	0.621	0.591	1.634	1.165	1.608	1.157	1.608	1.157	1.608
5	0.613	0.613	0.494	1.574	1.152	1.580	1.152	1.580	1.152	1.580
6	0.613	0.613	0.447	1.574	1.152	1.580	1.152	1.580	1.152	1.580
7	0.678	0.678	0.447	1.676	1.166	1.603	1.157	1.603	1.157	1.603
RADIAL POSITION	REL INLET MACH NO	ABS INLET MACH NO	EXIT REL MACH NO	TEMP RATIO	FIXED TOY PRESS RATIO	TRAV TOY PRESS RATIO	FIXED TOY PRESS RATIO	TEMP RATIO	FIXED TOY PRESS RATIO	TEMP RATIO
1	0.627	0.865	1.403	1.732	1.223	1.708	1.207	1.708	1.207	1.708
2	0.592	0.741	1.418	1.692	1.190	1.692	1.208	1.692	1.190	1.692
3	0.793	0.647	1.377	1.662	1.178	1.662	1.176	1.662	1.176	1.662
4	0.775	0.627	1.272	1.634	1.165	1.608	1.157	1.608	1.157	1.608
5	0.749	0.654	1.166	1.574	1.152	1.580	1.152	1.580	1.152	1.580
6	0.639	0.593	0.983	1.574	1.152	1.580	1.152	1.580	1.152	1.580
7	0.602	0.602	0.921	1.676	1.166	1.603	1.157	1.603	1.157	1.603

OVERALL PERFORMANCE SUMMARY

STAGE DATA		ROTOR DATA		ROTOR DATA	
FIXED INST.	FIXED INST.	TRAV.	INSET.	TRAV.	INSET.
1.6293	1.6533	1.6770	0.8350	0.8618	0.9076
0.8350	0.8618	0.9076	0.8459	0.8713	0.9141
Discharge Valve Setting= 9.0					
Percent Design Speed = 100.1					
Cor. Nozzle Weight Flow= 214.5					
LE Check Flow/Noz.Flow = 1.0387					
Assumed LE Flow Coeff. = 0.9950					
TE Check Flow/Noz.Flow = 0.9334					
Assumed TE Flow Coeff. = 0.9500					

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW # NASA TASK 10													
BLADE ELEMENT PERFORMANCE RESULTS													
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG	INCID ANS	INLET ANS	INLET ANG	INLET SURF	INLET VEL	INLET AX VELOCITY	INLET REL VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		40.39	39.47	0.92		716.91							
2		38.33	39.11	-0.78		714.08							
3		39.38	39.01	0.37		750.12							
4		40.53	39.80	0.73		730.68							
5		41.78	40.86	0.92		744.53							
6		45.44	42.72	3.22		714.94							
7		50.30	42.76	7.54		778.32							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG	INCID ANS	INLET ANS	INLET ANG	INLET SURF	INLET VEL	INLET AX VELOCITY	INLET REL VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		-1.39	11.13	9.78		531.24							
2		1.18	10.10	11.28		582.95							
3		2.05	9.87	10.92		606.57							
4		0.75	9.75	9.50		544.03							
5		0.10	9.10	9.20		522.96							
6		2.26	10.58	12.84		514.58							
7		-1.43	12.56	10.93		497.48							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG	INCID ANS	INLET ANS	INLET ANG	INLET SURF	INLET VEL	INLET AX VELOCITY	INLET REL VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		0.999		1.009									
2		0.605		1.041									
3		0.641		1.045									
4		0.827		0.998									
5		0.643		0.944									
6		0.617		1.030									
7		0.673		1.005									
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG	INCID ANS	INLET ANS	INLET ANG	INLET SURF	INLET VEL	INLET AX VELOCITY	INLET REL VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		0.459		1.5230									
2		0.487		1.5440									
3		0.511		1.6310									
4		0.468		1.7420									
5		0.445		1.6800									
6		0.438		2.0510									
7		0.422		2.0980									
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG	INCID ANS	INLET ANS	INLET ANG	INLET SURF	INLET VEL	INLET AX VELOCITY	INLET REL VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		0.959		1.006									
2		0.977		1.006									
3		0.978		1.004									
4		0.980		1.000									
5		0.972		1.000									
6		0.988		1.006									
7		0.933		0.971									

OVERALL PERFORMANCE SUMMARY

STAGE DATA	STATOR DATA	STATOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.
1.6293	0.9855	0.9744
0.8459	0.9708	0.8765
Total Pressure Ratio =		
Polytropic Efficiency =		
Percent Design Speed = 100.1		
Cor. Nozzle Weight Flow = 214.5		
Discharge Valve Setting = 9.0		

IE Check Flow/Noz.Flow = 0.9383 TE Check Flow/Noz.Flow = 0.9246
 Assumed IE Flow Coeff. = 0.9350 Assumed TE Flow Coeff. = 0.9350

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW # NASA TASK IV																	
		BLADE ELEMENT PERFORMANCE RESULTS																	
		POINT NUMBER 16												67 4/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID AN6 MN CHBR LN	INCID AN6 SURF BUCT	INLET AN6 VELOCITY	INLET ARS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ARS TANG VEL	INLET REL TANG VEL	INLET AX VELOCITY	INLET ARS TANG VEL	INLET REL TANG VEL	INLET AX VELOCITY	INLET ARS TANG VEL	INLET REL TANG VEL		
1	63.23	0.13	2.63	60.60	-0.07	660.28	3523.18	3523.18	884.98	1.54	884.98	884.98	884.98	1.54	884.98	884.98	884.98		
2	61.48	-1.09	1.87	59.61	-1.16	732.47	1529.88	1529.88	720.77	-13.83	720.77	720.77	-13.83	720.77	720.77	720.77	720.77		
3	54.25	0.99	1.76	56.01	-0.22	853.17	1460.05	1460.05	853.02	14.81	853.02	853.02	14.81	853.02	853.02	853.02	853.02		
4	51.80	0.68	1.36	52.56	-0.20	854.02	1360.32	1360.32	851.50	9.85	851.50	851.50	9.85	851.50	851.50	851.50	851.50		
5	48.01	0.23	1.70	49.71	-0.49	850.90	1262.14	1262.14	839.10	3.36	839.10	839.10	3.36	839.10	839.10	839.10	839.10		
6	47.94	-0.21	0.83	47.11	-0.83	743.08	1084.77	1084.77	713.21	52.57	713.21	713.21	52.57	713.21	713.21	713.21	713.21		
7	44.87	-0.71	2.54	46.13	-0.56	695.19	1033.51	1033.51	660.74	50.22	660.74	660.74	50.22	660.74	660.74	660.74	660.74		
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV AN6	REL TURN ANGLE	EXIT VELOCITY	EXIT ARS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS TANG VEL	EXIT REL TANG VEL	EXIT AX VELOCITY	EXIT ARS TANG VEL	EXIT REL TANG VEL	EXIT AX VELOCITY	EXIT ARS TANG VEL	EXIT REL TANG VEL		
1	59.80	30.99	3.43	5.06	3.43	676.59	1154.27	1154.27	580.04	348.37	580.04	580.04	348.37	580.04	580.04	580.04	580.04		
2	54.42	26.80	2.01	4.59	2.01	670.38	1154.74	1154.74	585.98	322.20	585.98	585.98	322.20	585.98	585.98	585.98	585.98		
3	58.27	31.96	-1.02	4.59	-1.02	683.35	1017.45	1017.45	579.63	361.61	579.63	579.63	361.61	579.63	579.63	579.63	579.63		
4	48.43	36.92	4.64	4.64	4.64	717.71	864.67	864.67	573.72	431.01	573.72	573.72	431.01	573.72	573.72	573.72	573.72		
5	40.75	37.23	7.25	8.60	7.25	742.48	780.21	780.21	589.86	448.27	589.86	589.86	448.27	589.86	589.86	589.86	589.86		
6	28.61	41.23	14.29	14.32	14.29	789.51	674.55	674.55	588.55	515.70	588.55	588.55	515.70	588.55	588.55	588.55	588.55		
7	20.68	44.89	27.98	12.68	27.98	839.08	640.69	640.69	587.69	585.50	587.69	587.69	585.50	587.69	587.69	587.69	587.69		
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	DIFFUSION FACTOR	CHI	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	DIFFUSION FACTOR	CHI	
1	1344.97	0.580	0.286	1.3340	1344.97	0.580	0.286	0.322	0.362	1344.97	0.580	0.286	1.3340	1344.97	0.580	0.286	0.322	0.362	
2	1316.10	0.579	0.298	1.33690	1316.10	0.579	0.298	0.325	0.378	1316.10	0.579	0.298	1.33690	1316.10	0.579	0.298	0.325	0.378	
3	1197.47	0.591	0.860	1.5080	1197.47	0.591	0.860	0.362	0.449	1197.47	0.591	0.860	1.5080	1197.47	0.591	0.860	0.362	0.449	
4	1077.79	0.619	0.746	1.6840	1077.79	0.619	0.746	0.457	0.540	1077.79	0.619	0.746	1.6840	1077.79	0.619	0.746	0.457	0.540	
5	956.80	0.649	0.682	1.9060	956.80	0.649	0.682	0.475	0.590	956.80	0.649	0.682	1.9060	956.80	0.649	0.682	0.475	0.590	
6	836.72	0.691	0.594	2.2170	836.72	0.691	0.594	0.485	0.567	836.72	0.691	0.594	2.2170	836.72	0.691	0.594	0.485	0.567	
7	807.38	0.736	0.562	2.3390	807.38	0.736	0.562	0.503	0.545	807.38	0.736	0.562	2.3390	807.38	0.736	0.562	0.503	0.545	
RADIAL POSITION	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	LOSS POLY PRESS EFFICIENCY											
1	5.0000	1.498	1.498	1.448	1.154	1.154	1.154	0.172	0.172	0.172	0.172	0.172	0.172	0.172	0.172	0.172	0.172	0.172	0.172
2	10.0000	1.489	1.489	1.473	1.149	1.149	1.149	0.131	0.131	0.131	0.131	0.131	0.131	0.131	0.131	0.131	0.131	0.131	0.131
3	30.0000	1.489	1.489	1.512	1.150	1.150	1.150	0.106	0.106	0.106	0.106	0.106	0.106	0.106	0.106	0.106	0.106	0.106	0.106
4	50.0000	1.515	1.515	1.500	1.154	1.154	1.154	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143
5	90.0000	1.526	1.526	1.511	1.136	1.136	1.136	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.055
6	90.0000	1.531	1.531	1.514	1.144	1.144	1.144	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096
7	98.0000	1.608	1.608	1.578	1.144	1.144	1.144	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098	0.098
		OVERALL PERFORMANCE SUMMARY																	
		SPACE DATA ROTOR DATA ROTOR DATA																	
		FIXED INST. FIXED INST. TRAV. INST.																	
		1.4733 1.5002 1.5117																	
		0.7980 0.8390 0.8804																	
		0.8087 0.8480 0.8972																	
		Percent Design Speed = 100.1																	
		Cor. Nozzle Weight Flow = 219.2																	
		IE Check Flow/Noz.Flow = 1.0891																	
		Assumed IE Flow Coeff. = 0.9850																	

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW 2 NASA TASK IV											
		BLADE ELEMENT PERFORMANCE RESULTS											
		POINT NUMBER	16	READING NUMBER	27	DATE	6/	4/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INGID ANG SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET AX VELOCITY	INLET ABS TANG VEL	
1		30.83	39.57	18.64	682.21	585.80	349.63	585.80	349.63	585.80	349.63	585.80	
2		26.127	39.11	-8.89	720.29	601.30	323.37	601.30	323.37	601.30	323.37	601.30	
3		30.12	39.01	15.30	756.71	622.89	361.57	622.89	361.57	622.89	361.57	622.89	
4		34.41	39.80	-6.43	807.56	640.10	438.80	640.10	438.80	640.10	438.80	640.10	
5		34.73	40.88	-3.76	846.57	626.08	497.22	626.08	497.22	626.08	497.22	626.08	
6		38.46	42.22	-0.63		621.37	562.13	621.37	562.13	621.37	562.13	621.37	
7		42.13	42.76										
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	YURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT AX VELOCITY	EXIT ABS TANG VEL	
1		1.24	11.13	12.37	29.59	534.78	11.54	534.78	11.54	534.78	11.54	534.78	
2		0.31	10.41	27.97	606.07	606.03	3.23	606.03	3.23	606.03	3.23	606.03	
3		-0.18	8.87	8.71	641.07	640.80	-1.80	640.80	-1.80	640.80	-1.80	640.80	
4		0.35	8.75	9.60	639.09	634.31	9.46	634.31	9.46	634.31	9.46	634.31	
5		-0.73	9.10	8.37	684.21	667.74	-8.45	667.74	-8.45	667.74	-8.45	667.74	
6		0.30	10.58	38.13	706.91	704.73	3.71	704.73	3.71	704.73	3.71	704.73	
7		0.30	12.66	41.84	697.77	697.51	3.61	697.51	3.61	697.51	3.61	697.51	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	SVAT PRESS RISE COEFF	CHI FACTOR	DIFFUSION	
1		0.583	0.918	0.918	1.5230	0.152	0.050	0.1050	0.3801	0.131	0.141	0.141	
2		0.591	1.008	1.008	1.5440	0.067	0.022	0.022	0.7266	0.144	0.179	0.179	
3		0.626	1.029	1.029	1.6310	0.098	0.028	0.028	0.8352	0.142	0.264	0.264	
4		0.655	1.018	1.018	1.7420	0.074	0.021	0.021	0.6898	0.183	0.264	0.264	
5		0.685	1.035	1.035	1.8800	0.044	0.012	0.012	0.7341	0.182	0.318	0.318	
6		0.708	1.126	1.126	2.0510	0.060	0.015	0.015	0.6557	0.200	0.300	0.300	
7		0.743	1.123	1.123	2.0980	0.085	0.020	0.020	0.6082	0.149	0.271	0.271	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	FIXED TOY PRESS RATIO	FIXED TOY TEMP RATIO	LOSS COEFF	LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	SVAT PRESS RISE COEFF	CHI FACTOR	
1		0.455	0.984	0.984	0.986	1.000	0.152	0.050	0.1050	0.3801	0.131	0.141	
2		0.520	1.002	1.002	0.986	1.000	0.067	0.022	0.022	0.7266	0.144	0.179	
3		0.552	1.003	1.003	0.986	1.000	0.098	0.028	0.028	0.8352	0.142	0.264	
4		0.577	0.981	0.981	0.979	1.000	0.074	0.021	0.021	0.6898	0.183	0.264	
5		0.615	0.977	0.977	0.988	1.000	0.044	0.012	0.012	0.7341	0.182	0.318	
6		0.655	0.973	0.973	0.988	1.000	0.060	0.015	0.015	0.6557	0.200	0.300	
7		0.685	0.986	0.986	0.973	1.000	0.085	0.020	0.020	0.6082	0.149	0.271	
OVERALL PERFORMANCE SUMMARY													
STAGE DATA STATOR DATA STATOR DATA													
FIXED INST. FIXED INST. TRAV. INST.													
		Total Pressure Ratio =	1.4723		0.9814		0.9754						
		Polytropic Efficiency =	0.8087		0.9537		0.8378						
		Percent Design Speed =	100.1		Discharge Valve Setting=15.0								
		Cor. Nozzle Weight Flow=	219.2										
		IE Check Flow/Noz.Flow =	0.9451		TE Check Flow/Noz.Flow =		0.9215						
		Assumed IE Flow Coeff. =	0.9550		Assumed TE Flow Coeff. =		0.9350						

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW # NASA TASK IV												
		BLADE ELEMENT PERFORMANCE RESULTS												
		POINT NUMBER	6	READING NUMBER	39	DATE	6/10/1970							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET RRL TANG VEL			
1	69.64	-3.79	60.60	9.04	6.34	522.24	1487.92	517.12	-34.26	1393.48				
2	67.66	-2.59	59.61	8.05	5.02	559.22	1465.31	556.76	-25.18	1354.48				
3	61.84	-1.58	56.01	5.83	1.37	652.23	1381.37	651.97	-18.00	1217.83				
4	60.64	-3.14	52.56	6.08	2.24	623.18	1266.29	620.46	-34.01	1102.81				
5	58.18	-2.81	49.71	8.47	3.68	607.88	1266.29	598.75	-29.44	965.06				
6	56.96	-2.77	47.11	9.85	2.19	581.85	982.87	529.10	-25.59	813.36				
7	56.68	-2.83	46.13	10.55	2.65	531.71	933.80	504.84	-24.97	768.04				
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT RRL TANG VEL			
1	55.80	50.74	54.80	1.00	13.85	789.99	889.03	499.12	610.72	734.34				
2	53.52	48.17	54.82	0.90	12.34	771.22	903.60	513.57	573.87	742.32				
3	51.22	50.00	50.68	2.84	6.32	732.54	791.97	470.83	561.05	636.70				
4	48.27	52.59	43.79	4.48	12.37	730.62	666.94	443.83	580.28	497.58				
5	47.23	55.57	32.15	10.48	15.56	711.95	547.80	402.09	586.58	376.08				
6	29.29	54.82	14.29	15.00	27.67	737.52	490.89	422.88	599.68	237.09				
7	17.95	56.72	8.00	9.95	36.74	802.00	468.94	437.12	665.85	141.59				
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	INLET REL MACH NO	EXIT ABS MACH NO	EXIT REL MACH NO	DIFFUSION FACTOR	CHI					
1	1459.42	0.474	1.352	0.965	0.923	0.727	0.658	0.564	0.455					
2	1329.47	0.310	1.336	0.722	0.722	0.651	0.7534	0.532	0.477					
3	1199.63	0.602	1.274	0.715	0.715	0.632	0.8270	0.566	0.554					
4	1068.80	0.573	1.165	0.672	0.672	0.636	0.8161	0.618	0.583					
5	935.62	0.560	1.091	0.799	0.799	0.627	0.8639	0.663	0.626					
6	782.77	0.506	0.961	0.866	0.866	0.682	0.8686	0.648	0.657					
7	743.07	0.487	0.854			0.644	0.8431	0.663	0.693					
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT TEMP RATIO	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	TRAV TOT PRESS RATIO	POLY HOMOEN MEAS T RISE	STAT PRESS COEFF					
1	1445.06	0.650	0.7731	1.3340	0.277	1.646	0.264	0.7474	0.344					
2	1316.18	0.644	0.7755	1.3690	0.245	1.253	1.253	0.7735	0.368					
3	1197.75	0.615	0.665	1.5080	0.164	1.214	1.214	0.8403	0.466					
4	1077.06	0.617	0.563	1.6840	0.182	1.198	1.198	0.8291	0.523					
5	956.67	0.607	0.467	1.9060	0.140	1.634	1.634	0.8730	0.600					
6	836.77	0.634	0.422	2.270	0.163	1.375	1.375	0.8770	0.703					
7	807.44	0.692	0.404	2.3390	0.215	1.160	1.160	0.8531	0.780					
RADIAL POSITION	PERCENT DIMENSION	PERFORM. PARAMETERS	PERCENT DESIGN SPEED	NOZZLE WEIGHT FLOW	DISCHARGE VALVE SETTING	OVERALL PERFORMANCE SUMMARY								
1	9.0000	Total Pressure Ratio =	100.1	184.3	4.5	SPACE DATA ROTOR DATA ROTOR DATA								
2	10.0000	Adiabatic Efficiency =	1.0524			FIXED INST. FIXED INST. TRAV. INST.								
3	30.0000	Polytropic Efficiency =	0.9829			1.6856 1.7353 1.7733								
4	50.0000		0.9500			0.7580 0.8036 0.8524								
5	70.0000					0.7750 0.8182 0.8638								
6	90.0000													
7	98.0000													

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		STATOR BLADE ROW # NASA TASK IV													
		BLADE ELEMENT PERFORMANCE RESULTS													
		POINT NUMBER	6	READING NUMBER	39	DATE	6/10/1970								
RADIAL POSITION	REL INLET FLOW ANG	ARS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	50.56	47.60	39.47	11.11	8.49	793.37	779.90	503.74	612.92	575.95	501.25	525.82	560.51	574.51	578.19
2	48.19	45.11	39.01	9.18	752.19	747.30	476.44	429.41	574.18	545.11	458.69	639.28	578.19	578.19	639.28
3	50.33	48.19	39.01	10.35	719.16	734.15	791.84	458.69	639.28	578.19	458.69	639.28	578.19	578.19	639.28
4	53.21	52.41	40.86	12.35	719.16	734.15	791.84	458.69	639.28	578.19	458.69	639.28	578.19	578.19	639.28
5	52.41	54.34	42.22	10.19	11.58	791.84	791.84	458.69	639.28	578.19	458.69	639.28	578.19	578.19	639.28
6	54.34	54.34	42.76	11.58	11.58	791.84	791.84	458.69	639.28	578.19	458.69	639.28	578.19	578.19	639.28
7	54.34	54.34	42.76	11.58	11.58	791.84	791.84	458.69	639.28	578.19	458.69	639.28	578.19	578.19	639.28
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	0.50	0.50	-11.13	11.63	50.08	615.47	615.44	615.44	5.40	5.40	54.59	54.59	54.59	54.59	54.59
2	4.90	4.90	-10.10	15.00	42.71	635.43	635.43	635.43	565.81	565.81	524.72	524.72	524.72	524.72	524.72
3	-0.23	-0.23	-8.87	8.64	48.42	565.85	565.85	565.85	34.49	34.49	34.49	34.49	34.49	34.49	34.49
4	-2.82	-2.82	-8.75	5.83	53.25	485.67	485.67	485.67	34.49	34.49	34.49	34.49	34.49	34.49	34.49
5	-2.87	-2.87	-9.10	6.23	56.08	437.38	437.38	437.38	376.50	376.50	376.50	376.50	376.50	376.50	376.50
6	4.84	4.84	-10.58	15.42	47.57	430.28	430.28	430.28	376.50	376.50	376.50	376.50	376.50	376.50	376.50
7	-5.99	-5.99	-12.56	6.37	60.33	379.77	379.77	379.77	376.50	376.50	376.50	376.50	376.50	376.50	376.50
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	EFFICIENCY	ADD EFFICIENCY	POLY MOMEN RISE/HEAT RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CHK1			
1	0.653	0.653	0.653	1.222	0.174	0.057	0.4696	0.164	0.179	0.179	0.476	0.179			
2	0.652	0.652	0.652	1.212	0.134	0.041	0.6050	0.182	0.198	0.198	0.396	0.198			
3	0.653	0.653	0.653	1.128	0.134	0.041	0.6232	0.247	0.265	0.265	0.476	0.265			
4	0.614	0.614	0.614	1.017	0.111	0.032	0.1566	0.377	0.349	0.349	0.579	0.349			
5	0.631	0.631	0.631	1.015	0.091	0.024	0.17488	0.443	0.466	0.466	0.610	0.466			
6	0.631	0.631	0.631	0.916	0.091	0.022	0.17649	0.496	0.520	0.520	0.618	0.520			
7	0.662	0.662	0.662	0.821	0.071	0.017	0.15824	0.412	0.439	0.439	0.721	0.439			
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	Total Pressure Ratio	Polytropic Efficiency	Percent Design Speed	Cor. Nozzle Weight Flow	OVERALL PERFORMANCE SUMMARY				
1	0.503	0.503	0.503	1.5230	1.000	1.000	1.6856	0.9517	100.1	184.3	1.0358				
2	0.526	0.526	0.526	1.5440	1.000	1.000	1.6856	0.9517	100.1	184.3	1.0358				
3	0.470	0.470	0.470	1.6310	1.000	1.000	1.6856	0.9517	100.1	184.3	1.0358				
4	0.404	0.404	0.404	1.7420	1.000	1.000	1.6856	0.9517	100.1	184.3	1.0358				
5	0.356	0.356	0.356	1.8800	1.000	1.000	1.6856	0.9517	100.1	184.3	1.0358				
6	0.344	0.344	0.344	2.0510	1.000	1.000	1.6856	0.9517	100.1	184.3	1.0358				
7	0.318	0.318	0.318	2.0980	1.000	1.000	1.6856	0.9517	100.1	184.3	1.0358				

STATOR DATA SUMMARY DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.6856 0.9517
 0.7750 0.9472 0.7793
 Discharge Valve Setting=4.5
 IE Check Flow/Noz.Flow = 0.9881
 Assumed IE Flow Coeff. = 0.9550
 Assumed TE Flow Coeff. = 0.0350

061170 ROTOR BLADE ROW # NASA TASK IV
 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW #		NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER		READING NUMBER		DATE	
7		7		46		6/10/1970		6/10/1970			
RADIAL POSITION	REL INLET FLOW ANG	ARS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	64.11	-0.39	60.60	3.51	0.81	666.72	1517.59	661.59	-4.50	1367.30	
2	61.72	-0.21	59.61	2.11	-0.92	718.70	1513.13	716.27	-2.64	1331.50	
3	54.85	0.62	56.16	-1.16	-2.62	838.20	1455.70	838.13	9.07	1490.70	
4	53.01	-0.13	52.56	0.45	-5.39	808.50	1341.28	808.22	-1.87	1070.18	
5	50.53	-1.11	49.71	0.82	-5.97	793.74	1238.10	782.59	-15.13	950.82	
6	50.87	-1.07	47.11	3.76	-3.90	685.97	1065.36	658.08	-21.46	808.87	
7	50.74	-1.64	46.13	4.61	-3.29	654.14	1003.03	621.54	-17.85	768.58	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN LE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	58.41	41.00	54.80	3.61	5.71	715.52	1020.48	538.83	468.32	874.12	
2	58.15	38.85	54.42	3.73	3.58	700.86	1033.23	544.80	438.75	874.83	
3	53.50	41.48	50.68	2.82	1.35	714.94	900.39	535.49	473.49	723.71	
4	49.35	43.50	43.79	5.54	3.68	705.96	785.04	511.56	482.00	595.37	
5	41.36	44.98	32.15	9.21	9.11	720.46	679.11	508.76	508.37	447.86	
6	33.75	48.65	14.29	19.46	17.12	706.44	563.52	463.49	526.70	309.70	
7	22.71	53.28	8.00	14.71	28.03	773.55	506.94	458.74	615.03	192.83	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LBSS COEFFICIENT	LBSS TOT PRESS PARAM	EFFICIENCY	POLY EFFICIENCY	POLY MOMEN MEAS	STAT PRESS RISE COEFF	
1	1359.80	0.618	0.614	0.614	0.161	0.032	0.7999	0.8142	0.848	0.348	
2	1328.86	0.620	0.781	0.781	0.145	0.028	0.8185	0.8315	0.371	0.371	
3	1399.28	0.795	0.639	0.635	0.097	0.019	0.8769	0.8857	0.487	0.487	
4	1068.31	0.763	0.635	0.635	0.101	0.020	0.8777	0.8840	0.559	0.559	
5	935.19	0.748	0.650	0.650	0.042	0.008	0.9496	0.9529	0.675	0.675	
6	787.41	0.638	0.704	0.704	0.092	0.017	0.9108	0.9164	0.703	0.703	
7	742.73	0.606	0.929	0.928	0.097	0.019	0.9161	0.9215	0.777	0.777	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TEMP RATIO	FIXED TOY PRESS RATIO	TEMP RATIO	PERCENT IMMERSION	
1	134.45	0.600	0.600	1.334	9.0000	1.270	1.693	1.203	1.203	9.0000	
2	1315.58	0.594	0.876	1.3690	10.0000	1.697	1.716	1.199	1.199	10.0000	
3	1197.20	0.609	0.767	1.5080	36.0000	1.699	1.699	1.187	1.187	36.0000	
4	1077.37	0.601	0.671	1.6840	50.0000	1.646	1.646	1.174	1.174	50.0000	
5	956.23	0.621	0.585	1.9060	79.0000	1.611	1.611	1.154	1.154	79.0000	
6	836.39	0.610	0.487	2.2570	98.0000	1.576	1.576	1.153	1.153	98.0000	
7	807.07	0.669	0.438	2.3390	95.0000	1.664	1.664	1.167	1.167	95.0000	
OVERALL PERFORMANCE SUMMARY											
SPACE DATA ROTOR DATA ROTOR DATA											
FIXED INST. FIXED INST. TRAV. INST.											
1-6301 1-6572 1-6767											
0.8440 0.8747 0.8958											
0.8544 0.8833 0.9032											
Discharge Valve Setting= 9.0											
Cor. Nozzle Weight Flow= 213.7											
Percent Design Speed = 100.1											
TE Check Flow/Noz.Flow = 1.0403											
Assumed IE Flow Coeff. = 0.9850											
Assumed TE Flow Coeff. = 0.9500											

061170 STATOR BLADE ROW * NASA TASK IV
 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

RADIAL POSITION		REL INLET FLOW ANG		ABS INLET FLOW ANG		CHBR LN LE ANGLE		INCID ANG MN CHBR LN		INCID ANG SUCT SURF		INLET ABS VELOCITY		INLET REL VELOCITY		INLET AX VELOCITY		INLET ABS TANG VEL		INLET REL TANG VEL	
POINT NUMBER		7		7		7		7		7		7		7		7		7		7	
READING NUMBER		40		40		40		40		40		40		40		40		40		40	
DATE		6/10/1970		6/10/1970		6/10/1970		6/10/1970		6/10/1970		6/10/1970		6/10/1970		6/10/1970		6/10/1970		6/10/1970	
1	1	40.83	39.47	39.47	39.47	39.47	39.47	39.47	39.47	39.47	39.47	718.91	718.91	718.91	718.91	718.91	718.91	470.02	470.02	470.02	470.02
2	2	38.26	39.11	39.11	39.11	39.11	39.11	39.11	39.11	39.11	39.11	711.07	711.07	711.07	711.07	711.07	711.07	440.34	440.34	440.34	440.34
3	3	39.56	39.01	39.01	39.01	39.01	39.01	39.01	39.01	39.01	39.01	743.42	743.42	743.42	743.42	743.42	743.42	473.04	473.04	473.04	473.04
4	4	40.85	39.80	39.80	39.80	39.80	39.80	39.80	39.80	39.80	39.80	730.93	730.93	730.93	730.93	730.93	730.93	477.21	477.21	477.21	477.21
5	5	42.28	40.86	40.86	40.86	40.86	40.86	40.86	40.86	40.86	40.86	743.04	743.04	743.04	743.04	743.04	743.04	497.62	497.62	497.62	497.62
6	6	46.09	42.22	42.22	42.22	42.22	42.22	42.22	42.22	42.22	42.22	710.42	710.42	710.42	710.42	710.42	710.42	507.82	507.82	507.82	507.82
7	7	50.80	42.76	42.76	42.76	42.76	42.76	42.76	42.76	42.76	42.76	767.70	767.70	767.70	767.70	767.70	767.70	590.49	590.49	590.49	590.49

RADIAL POSITION		REL EXIT FLOW ANG		ABS EXIT FLOW ANG		CHBR LN TE ANGLE		DEV ANG TE		TURN ANGLE		EXIT ABS VELOCITY		EXIT REL VELOCITY		EXIT AX VELOCITY		EXIT ABS TANG VEL		EXIT REL TANG VEL	
1	1	1.63	11.13	11.13	11.13	11.13	11.13	9.50	9.50	42.46	42.46	533.74	533.74	533.74	533.74	533.74	533.74	15.17	15.17	15.17	15.17
2	2	0.57	10.10	10.10	10.10	10.10	10.10	9.53	9.53	38.84	38.84	574.83	574.83	574.83	574.83	574.83	574.83	5.76	5.76	5.76	5.76
3	3	1.37	8.87	8.87	8.87	8.87	8.87	10.24	10.24	36.18	36.18	600.04	600.04	600.04	600.04	600.04	600.04	14.37	14.37	14.37	14.37
4	4	8.35	8.75	8.75	8.75	8.75	8.75	9.10	9.10	40.58	40.58	551.74	551.74	551.74	551.74	551.74	551.74	3.33	3.33	3.33	3.33
5	5	0.56	9.20	9.20	9.20	9.20	9.20	8.54	8.54	42.84	42.84	519.75	519.75	519.75	519.75	519.75	519.75	5.08	5.08	5.08	5.08
6	6	3.23	10.58	10.58	10.58	10.58	10.58	13.81	13.81	42.87	42.87	513.50	513.50	513.50	513.50	513.50	513.50	28.82	28.82	28.82	28.82
7	7	1.71	12.56	12.56	12.56	12.56	12.56	10.65	10.65	52.51	52.51	495.58	495.58	495.58	495.58	495.58	495.58	14.76	14.76	14.76	14.76

RADIAL POSITION		ROTOR SPD AT INLET		INLET ABS MACH NO		INLET REL MACH NO		AXIAL VEL RATIO		SOLIDITY COEFFICIENT		LOSS		TOT PRESS LOSS		POLY WOMEN RISE/ RISE		STAT PRESS RISE COEFF		CH1	
1	1	0.603	0.603	0.603	0.603	0.603	0.603	0.981	0.981	1.5230	1.5230	0.055	0.055	0.034	0.034	0.5234	0.5234	0.212	0.212	0.227	0.227
2	2	0.635	0.635	0.635	0.635	0.635	0.635	1.047	1.047	1.5440	1.5440	0.034	0.034	0.034	0.034	0.7261	0.7261	0.235	0.235	0.252	0.252
3	3	0.627	0.627	0.627	0.627	0.627	0.627	0.999	0.999	1.6310	1.6310	0.016	0.016	0.016	0.016	0.6015	0.6015	0.348	0.348	0.348	0.348
4	4	0.642	0.642	0.642	0.642	0.642	0.642	0.948	0.948	1.7420	1.7420	0.011	0.011	0.011	0.011	0.6162	0.6162	0.403	0.403	0.403	0.403
5	5	0.614	0.614	0.614	0.614	0.614	0.614	1.046	1.046	1.8800	1.8800	0.016	0.016	0.016	0.016	0.8017	0.8017	0.440	0.440	0.440	0.440
6	6	0.663	0.663	0.663	0.663	0.663	0.663	1.025	1.025	2.0980	2.0980	0.025	0.025	0.025	0.025	0.6464	0.6464	0.370	0.370	0.370	0.370

RADIAL POSITION		PERCENT DIMENSION		TRAV TOT PRESS RATIO		TRAV TOT TEMP RATIO		FIXED TOT PRESS RATIO		FIXED TOT TEMP RATIO		LOSS		TOT PRESS LOSS		POLY WOMEN RISE/ RISE		STAT PRESS RISE COEFF		CH1	
1	1	9.0000	9.0000	0.949	0.949	0.949	0.949	1.000	1.000	1.000	1.000	0.055	0.055	0.034	0.034	0.5234	0.5234	0.212	0.212	0.227	0.227
2	2	10.0000	10.0000	0.976	0.976	0.976	0.976	1.000	1.000	1.000	1.000	0.034	0.034	0.034	0.034	0.7261	0.7261	0.235	0.235	0.252	0.252
3	3	30.0000	30.0000	0.981	0.981	0.981	0.981	1.000	1.000	1.000	1.000	0.016	0.016	0.016	0.016	0.6015	0.6015	0.348	0.348	0.348	0.348
4	4	50.0000	50.0000	0.979	0.979	0.979	0.979	1.000	1.000	1.000	1.000	0.011	0.011	0.011	0.011	0.6162	0.6162	0.403	0.403	0.403	0.403
5	5	70.0000	70.0000	0.972	0.972	0.972	0.972	1.000	1.000	1.000	1.000	0.016	0.016	0.016	0.016	0.8017	0.8017	0.440	0.440	0.440	0.440
6	6	90.0000	90.0000	0.991	0.991	0.991	0.991	1.000	1.000	1.000	1.000	0.025	0.025	0.025	0.025	0.6464	0.6464	0.370	0.370	0.370	0.370
7	7	95.0000	95.0000	0.940	0.940	0.940	0.940	1.000	1.000	1.000	1.000	0.025	0.025	0.025	0.025	0.6464	0.6464	0.346	0.346	0.346	0.346

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INLET, FIXED INLET, TRAV, INLET,
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6301 0.9836 0.9744
 Polytropic Efficiency = 0.8544 0.9673 0.9106
 Percent Design Speed = 100.1 Discharge Valve Setting=9.0
 Cor. Nozzle Weight Flow = 213.7
 IE Check Flow/Noz.Flow = 0.9357 TE Check Flow/Noz.Flow = 0.9225
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350

061170 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW # NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER				
		READING NUMBER 41		DATE 6/10/1970		READING NUMBER 41		DATE 6/10/1970				
RADIAL POSITION	REL INLET FLOW ANG	ARS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG	INCID ANGL	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL		
1	63.29	-0.43	68.60	2.69	-0.01	892.26	1530.70	886.93	-5.12	1365.45		
2	61.72	-0.89	57.61	3.61	-1.42	739.86	1532.25	737.18	-11.48	1341.84		
3	54.14	0.35	56.01	-1.87	-6.33	864.17	1475.03	864.13	5.24	1195.39		
4	50.93	0.77	52.96	-1.63	-7.47	861.74	1364.30	858.85	11.48	1058.03		
5	47.89	0.12	49.71	-1.82	-8.61	896.83	1267.59	844.56	1.73	934.52		
6	47.98	-0.51	47.11	0.87	-6.79	745.99	1081.95	715.98	-8.39	794.69		
7	48.35	-0.72	46.13	2.22	-5.68	703.69	1029.84	668.82	-8.40	751.97		
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL		
1	60.00	32.25	57.80	5.20	3.30	675.21	1140.32	569.68	359.45	984.51		
2	59.51	29.28	54.42	5.09	1.71	670.05	1150.04	583.03	326.87	990.19		
3	55.39	31.93	50.68	4.71	-1.25	681.74	1016.39	578.42	360.51	838.04		
4	48.19	37.14	43.79	4.40	2.74	721.83	862.72	579.05	435.60	647.98		
5	40.17	36.96	32.15	8.02	7.72	751.99	786.17	599.53	451.20	506.11		
6	28.58	41.84	17.29	14.29	19.40	787.26	670.18	581.40	520.60	314.73		
7	21.56	45.39	8.00	13.56	26.79	825.76	628.71	573.42	581.37	226.40		
RADIAL POSITION	ROTOR SPD AT INLET	INLET ARS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS	LOSS COEFFICIENT	TOT PRESS LOSS	PARA EFFICIENCY	ADB EFFICIENCY	POLY MOMEN MEAS T RISE	STAT PRESS RISE
1	1360.13	0.644	1.424	0.829	1.3340	0.163	0.163	0.031	0.7389	0.7523	0.256	0.256
2	1330.36	0.577	1.434	0.791	1.3690	0.121	0.121	0.022	0.8039	0.8142	0.273	0.273
3	1200.63	0.823	1.405	0.649	1.5080	0.091	0.091	0.017	0.8573	0.8654	0.388	0.388
4	1069.51	0.820	1.299	0.670	1.6840	0.125	0.125	0.025	0.8234	0.8334	0.449	0.449
5	936.25	0.815	1.267	0.718	1.9060	0.045	0.045	0.009	0.9360	0.9416	0.544	0.544
6	788.10	0.699	1.821	0.812	2.2170	0.105	0.105	0.021	0.8857	0.8922	0.582	0.582
7	743.57	0.656	0.959	0.857	2.3390	0.088	0.088	0.017	0.9138	0.9188	0.673	0.673
RADIAL POSITION	PERCENT IMMERSION	TRAY TOT PRESS RATIO	TRAY TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	OVERALL PERFORMANCE SUMMARY					
1	5.0000	1.505	1.168	1.452	1.152	Total Pressure Ratio =	STAGE DATA ROTOR DATA ROTOR DATA					
2	19.0000	1.493	1.142	1.485	1.149	Adiabatic Efficiency =	FIXED INST. FIXED INST. TRAV. INST.					
3	39.0000	1.504	1.144	1.517	1.148	Polytropic Efficiency =	1.4835 1.5093 1.5216					
4	50.0000	1.527	1.157	1.513	1.153	Percent Design Speed =	0.8156 0.8333 0.8582					
5	70.0000	1.542	1.142	1.529	1.136	Cor. Nozzle Weight Flow =	0.8256 0.8616 0.8663					
6	90.0000	1.533	1.145	1.513	1.142	Discharge Valve Setting= 15.0						
7	99.0000	1.595	1.151	1.534	1.142	TE Check Flow/Noz.Flow = 1.0260						
							Assumed IE Flow Coeff. = 0.9950					
							Assumed TE Flow Coeff. = 0.9380					

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW #		NASA TASK IV													
BLADE ELEMENT PERFORMANCE RESULTS		DATE 6/10/1970													
POINT NUMBER 8		READING NUMBER 41													
RADIAL POSITION	1	CMBR LN LE ANGLE	39.47	INCID ANG	-7.38	INLET ABS VELOCITY	679.05	INLET RBL VELOCITY	575.29	INLET AX VELOCITY	575.29	INLET ABS YANG VEL	360.74	INLET REL YANG VEL	360.74
	2	MN CMBR LN	*40.37	SUCT SURF		682.30		598.22	598.22	621.30	328.06	328.06	328.06	328.06	
	3	INCL ANGLE	-6.91			718.53		621.30	621.30	621.30	360.17	360.17	360.17	360.17	
	4	INCID ANG	-5.47			760.57		621.30	621.30	621.30	431.27	431.27	431.27	431.27	
	5	INCL ANGLE	-6.72			791.51		651.36	651.36	651.36	441.66	441.66	441.66	441.66	
	6	INCID ANG	-3.14			804.12		618.10	618.10	618.10	501.94	501.94	501.94	501.94	
	7	INCID ANG	-0.10			831.99		605.63	605.63	605.63	558.17	558.17	558.17	558.17	
RADIAL POSITION	1	CMBR LN LE ANGLE	*11.13	DEV ANGLE	9.54	INLET ABS VELOCITY	531.03	EXIT ABS VELOCITY	530.82	EXIT AX VELOCITY	530.82	EXIT ABS YANG VEL	-14.77	EXIT REL YANG VEL	-14.77
	2	INCL ANGLE	-10.18	TURN ANGLE	33.68	611.98	611.89	611.89	611.89	611.89	8.15	8.15	8.15	8.15	
	3	INCL ANGLE	-8.87		27.98	640.31	640.04	640.04	640.04	640.04	2.19	2.19	2.19	2.19	
	4	INCL ANGLE	-8.75		33.00	637.23	636.42	636.42	636.42	636.42	11.42	11.42	11.42	11.42	
	5	INCL ANGLE	-9.18		6.96	674.61	673.16	673.16	673.16	673.16	-1.61	-1.61	-1.61	-1.61	
	6	INCL ANGLE	-10.58		11.23	700.83	698.02	698.02	698.02	698.02	7.92	7.92	7.92	7.92	
	7	INCL ANGLE	*12.56		13.45	695.07	692.71	692.71	692.71	692.71	13.17	13.17	13.17	13.17	
RADIAL POSITION	1	INLET ABS MACH NO	0.580	AXIAL VEL RATIO	0.923	LOSS COEFFICIENT	0.151	LOSS PARM	0.049	POLY MOMEN RISE/ EFFICIENCY	0.3865	STAT PRESS RISE COEFF	0.134	STAT PRESS RISE COEFF	0.134
	2	INLET ABS MACH NO	0.591		1.023	0.061	0.020	0.020	0.032	0.8032	0.147	0.147	0.147	0.147	
	3	INLET ABS MACH NO	0.624		1.030	0.074	0.074	0.074	0.023	0.8609	0.143	0.143	0.143	0.143	
	4	INLET ABS MACH NO	0.659		1.019	0.067	0.019	0.019	0.023	0.8826	0.182	0.182	0.182	0.182	
	5	INLET ABS MACH NO	0.694		1.033	0.043	0.011	0.011	0.011	0.7631	0.186	0.186	0.186	0.186	
	6	INLET ABS MACH NO	0.705		1.130	0.059	0.014	0.014	0.014	0.8737	0.142	0.142	0.142	0.142	
	7	INLET ABS MACH NO	0.729		1.144	0.063	0.020	0.020	0.020	0.4606	0.158	0.158	0.158	0.158	
RADIAL POSITION	1	REL INLET FLOW ANG	32.09	REL EXIT FLOW ANG	1.59	REL INLET FLOW ANG	32.09	REL EXIT FLOW ANG	1.59	REL INLET FLOW ANG	32.09	REL EXIT FLOW ANG	1.59	REL EXIT FLOW ANG	1.59
	2	REL INLET FLOW ANG	28.74		0.76	REL INLET FLOW ANG	28.74	REL EXIT FLOW ANG	0.76	REL INLET FLOW ANG	28.74	REL EXIT FLOW ANG	0.76	REL EXIT FLOW ANG	0.76
	3	REL INLET FLOW ANG	30.10		0.20	REL INLET FLOW ANG	30.10	REL EXIT FLOW ANG	0.20	REL INLET FLOW ANG	30.10	REL EXIT FLOW ANG	0.20	REL EXIT FLOW ANG	0.20
	4	REL INLET FLOW ANG	34.63		1.03	REL INLET FLOW ANG	34.63	REL EXIT FLOW ANG	1.03	REL INLET FLOW ANG	34.63	REL EXIT FLOW ANG	1.03	REL EXIT FLOW ANG	1.03
	5	REL INLET FLOW ANG	34.14		-0.14	REL INLET FLOW ANG	34.14	REL EXIT FLOW ANG	-0.14	REL INLET FLOW ANG	34.14	REL EXIT FLOW ANG	-0.14	REL EXIT FLOW ANG	-0.14
	6	REL INLET FLOW ANG	39.08		0.65	REL INLET FLOW ANG	39.08	REL EXIT FLOW ANG	0.65	REL INLET FLOW ANG	39.08	REL EXIT FLOW ANG	0.65	REL EXIT FLOW ANG	0.65
	7	REL INLET FLOW ANG	42.66		1.09	REL INLET FLOW ANG	42.66	REL EXIT FLOW ANG	1.09	REL INLET FLOW ANG	42.66	REL EXIT FLOW ANG	1.09	REL EXIT FLOW ANG	1.09
RADIAL POSITION	1	ROTGR SPD AT INLET	5.0000	PERCENT DECELERATION	5.0000	ROTGR SPD AT EXIT	0.947	PERCENT DECELERATION	0.947	ROTGR SPD AT EXIT	0.947	PERCENT DECELERATION	0.947	PERCENT DECELERATION	0.947
	2	ROTGR SPD AT INLET	10.0000		0.991	ROTGR SPD AT EXIT	0.991	PERCENT DECELERATION	0.991	ROTGR SPD AT EXIT	0.991	PERCENT DECELERATION	0.991	PERCENT DECELERATION	0.991
	3	ROTGR SPD AT INLET	30.0000		0.992	ROTGR SPD AT EXIT	0.992	PERCENT DECELERATION	0.992	ROTGR SPD AT EXIT	0.992	PERCENT DECELERATION	0.992	PERCENT DECELERATION	0.992
	4	ROTGR SPD AT INLET	50.0000		0.972	ROTGR SPD AT EXIT	0.972	PERCENT DECELERATION	0.972	ROTGR SPD AT EXIT	0.972	PERCENT DECELERATION	0.972	PERCENT DECELERATION	0.972
	5	ROTGR SPD AT INLET	70.0000		0.979	ROTGR SPD AT EXIT	0.979	PERCENT DECELERATION	0.979	ROTGR SPD AT EXIT	0.979	PERCENT DECELERATION	0.979	PERCENT DECELERATION	0.979
	6	ROTGR SPD AT INLET	90.0000		0.974	ROTGR SPD AT EXIT	0.974	PERCENT DECELERATION	0.974	ROTGR SPD AT EXIT	0.974	PERCENT DECELERATION	0.974	PERCENT DECELERATION	0.974
	7	ROTGR SPD AT INLET	95.0000		0.943	ROTGR SPD AT EXIT	0.943	PERCENT DECELERATION	0.943	ROTGR SPD AT EXIT	0.943	PERCENT DECELERATION	0.943	PERCENT DECELERATION	0.943

OVERALL PERFORMANCE SUMMARY

SPACE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.4835 0.9829 0.9774
 Polytropic Efficiency = 0.8296 0.9582 0.9234
 Percent Design Speed = 100.2 Discharge Valve Setting=15.0
 Cor. Nozzle Weight Flow= 221.1

IE Check Flow/Noz.Flow = 0.9377 TE Check Flow/Noz.Flow = 0.9214
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9330

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW 4 NASA TASK IV											
		BLADE ELEMENT PERFORMANCE RESULTS											
		POINT NUMBER 12 READING NUMBER 76 DATE 6/18/1970											
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	SUCT SURF INCID ANG	REL TURN ANGLE	EXIT ABS VELOCITY	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	62.88	0.41	60.60	2.28	-6.42	2.42	699.57	699.57	1925.09	694.19	5.02	1355.19	
2	61.42	-0.67	57.61	1.91	-5.122	2.42	732.08	732.08	1525.86	729.46	-6.56	1336.80	
3	54.04	0.58	56.01	-1.97	-6.743	2.42	864.54	864.54	1472.27	864.47	6.78	1191.74	
4	50.36	1.18	52.56	-2.20	-8.104	2.42	873.85	873.85	1365.07	871.15	17.94	1051.47	
5	47.29	0.95	49.71	-2.42	-9.121	2.42	863.16	863.16	1268.99	851.08	14.04	922.12	
6	47.57	0.62	47.11	0.48	-7.120	2.42	743.38	743.38	1077.87	713.47	7.68	780.55	
7	47.74	0.07	46.13	1.61	-6.6129	2.42	709.87	709.87	1027.37	674.74	6.82	742.68	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG	REL TURN ANGLE	EXIT ABS VELOCITY	INLET ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL		
1	60.46	23.60	54.80	5.68	2.42	669.36	669.36	4241.10	611.32	267.12	1078.72		
2	59.31	22.25	54.42	4.89	2.42	681.32	681.32	1233.31	628.87	257.22	1059.72		
3	56.05	26.76	50.68	5.17	2.42	674.77	674.77	1078.67	602.33	337.74	894.70		
4	49.42	32.84	43.79	5.56	2.42	708.12	708.12	914.60	594.87	383.90	694.58		
5	41.18	33.76	38.15	9.08	2.42	747.92	747.92	825.77	620.34	414.61	542.60		
6	27.88	38.38	14.29	13.59	19.69	816.51	816.51	725.77	633.73	502.01	335.25		
7	21.49	42.23	8.00	13.49	26.25	848.83	848.83	686.27	620.73	563.46	244.44		
RADIAL POSITION	ROTOR SPD AT INLET	INLET REL MACH NO	INLET ABS MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS LOSS	AUB EFFICIENCY	POLY HOMOEN RISE/ STAT PRESS	DIFFUSION FACTOR			
1	1360.21	1.414	0.863	0.863	0.149	0.028	0.028	0.8970	0.7084	0.250			
2	1330.24	1.421	0.862	0.862	0.149	0.028	0.028	0.8970	0.7084	0.250			
3	1200.52	1.396	0.820	0.820	0.149	0.028	0.028	0.8970	0.7084	0.250			
4	1089.41	1.298	0.829	0.829	0.149	0.028	0.028	0.8970	0.7084	0.250			
5	936.16	1.196	0.818	0.818	0.149	0.028	0.028	0.8970	0.7084	0.250			
6	788.23	1.005	0.693	0.693	0.149	0.028	0.028	0.8970	0.7084	0.250			
7	743.50	0.956	0.660	0.660	0.149	0.028	0.028	0.8970	0.7084	0.250			
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT REL MACH NO	EXIT ABS MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS LOSS	AUB EFFICIENCY	POLY HOMOEN RISE/ STAT PRESS				
1	1345.84	1.083	0.584	1.3346	0.149	0.028	0.028	0.8970	0.7084				
2	1316.94	1.081	0.597	1.3350	0.149	0.028	0.028	0.8970	0.7084				
3	1198.44	0.944	0.591	1.5089	0.149	0.028	0.028	0.8970	0.7084				
4	1076.48	0.797	0.617	1.6840	0.149	0.028	0.028	0.8970	0.7084				
5	957.22	0.657	0.657	1.9068	0.149	0.028	0.028	0.8970	0.7084				
6	837.26	0.720	0.720	2.2176	0.149	0.028	0.028	0.8970	0.7084				
7	807.90	0.749	0.749	2.3328	0.149	0.028	0.028	0.8970	0.7084				
RADIAL POSITION	PERCENT MASS FLOW	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO								
1	5.0000	1.1350	1.114	1.114	1.114								
2	10.0000	1.1365	1.106	1.106	1.111								
3	30.0000	1.1377	1.108	1.108	1.121								
4	50.0000	1.1401	1.124	1.124	1.134								
5	70.0000	1.1452	1.115	1.115	1.124								
6	90.0000	1.1501	1.126	1.126	1.139								
7	95.0000	1.1546	1.138	1.138	1.139								
OVERALL PERFORMANCE SUMMARY													
STAGE DATA ROTOR DATA ROTOR DATA													
FIXED INST. FIXED INST. TRAV. INST.													
PERFORMANCE PARAMETERS													
Total Pressure Ratio = 1.3429 1.3964 1.4136													
Adiabatic Efficiency = 0.7092 0.8077 0.8977													
Polytropic Efficiency = 0.7211 0.8106 0.9026													
Percent Design Speed = 100.2 Discharge Valve Setting= 30.0													
Cor. Nozzle Weight Flow= 216.9													
IE Check Flow/Noz.Flow = 1.0426 TR Check Flow/Noz.Flow = 0.0475													
Assumed IE Flow Coeff. = 0.9050 Assumed TR Flow Coeff. = 0.9000													

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

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		STATOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS					BLADE ELEMENT PERFORMANCE RESULTS				
		POINT NUMBER	12	READING NUMBER	76	DATE	6/18/79	70			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN	INCID ANG LM	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	23.46	23.46	39.47	=16.01	=17.34		673.29	617.61	617.61	268.08	268.08
2	21.77	21.77	39.11	=17.34	=17.34		696.06	646.38	646.38	258.15	258.15
3	25.06	25.06	39.01	=13.95	=13.95		716.93	649.07	649.07	303.45	303.45
4	30.39	30.39	37.80	=9.41	=9.41		753.09	648.03	648.03	380.08	380.08
5	30.97	30.97	40.88	=9.89	=9.89		793.59	676.28	676.28	405.85	405.85
6	35.54	35.54	42.22	=6.68	=6.68		841.72	677.54	677.54	484.02	484.02
7	39.42	39.42	42.78	=3.34	=3.34		861.49	658.13	658.13	540.98	540.98
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	INCID ANG	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	0.25	0.25	=11.13	11.38	23.21	23.21	624.12	624.12	624.12	2.73	2.73
2	-0.26	-0.26	=10.10	9.84	22.03	22.03	700.43	700.43	700.43	-3.14	-3.14
3	1.11	1.11	=8.87	7.78	26.37	26.37	726.81	726.81	726.81	14.07	14.07
4	-0.06	-0.06	=8.75	8.69	30.45	30.45	742.36	742.36	742.36	-6.73	-6.73
5	-2.88	-2.88	=9.18	6.22	33.85	33.85	770.76	770.76	770.76	38.84	38.84
6	0.94	0.94	=10.58	11.52	34.66	34.66	878.96	878.96	878.96	14.44	14.44
7	0.74	0.74	=12.38	13.19	38.68	38.68	846.83	846.83	846.83	18.92	18.92
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	INLET ABS MACH NO	EXIT ABS MACH NO	TOT PRESS LOSS COEFFICIENT	ADB EFFICIENCY	POLY MOMEN RISE/MEAS T RISE	STAT PRESS RISE COEFF	
1	0.988	0.988	0.988	1.011	1.011	1.011	0.070	0.070	0.070	0.137	
2	0.611	0.611	0.611	1.084	1.084	1.084	0.047	0.047	0.047	0.126	
3	0.630	0.630	0.630	1.119	1.119	1.119	0.044	0.044	0.044	0.112	
4	0.659	0.659	0.659	1.144	1.144	1.144	0.031	0.031	0.031	0.084	
5	0.701	0.701	0.701	1.140	1.140	1.140	0.030	0.030	0.030	0.120	
6	0.745	0.745	0.745	1.296	1.296	1.296	0.048	0.048	0.048	0.223	
7	0.761	0.761	0.761	1.281	1.281	1.281	0.055	0.055	0.055	0.212	
RADIAL POSITION	PERCENT DEVISION AT EXIT	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	LOSS COEFFICIENT	FIXED TOT PRESS RATIO	TEMP RATIO	TOT PRESS LOSS COEFFICIENT	ADB EFFICIENCY	POLY MOMEN RISE/MEAS T RISE	STAT PRESS RISE COEFF
1	9.0000	0.934	0.934	0.954	1.080	1.080	1.080	0.070	0.070	0.137	
2	10.0000	0.969	0.969	0.968	1.000	1.000	1.000	0.047	0.047	0.126	
3	30.0000	0.973	0.994	0.967	1.000	1.000	1.000	0.044	0.044	0.112	
4	50.0000	0.965	1.001	0.972	1.000	1.000	1.000	0.031	0.031	0.084	
5	70.0000	0.939	0.994	0.967	1.000	1.000	1.000	0.030	0.030	0.120	
6	90.0000	0.933	0.992	0.938	1.000	1.000	1.000	0.048	0.048	0.223	
7	95.0000	0.890	0.994	0.924	1.000	1.000	1.000	0.055	0.055	0.212	
OVERALL PERFORMANCE SUMMARY											
			SOURCE DATA STATOR DATA STATOR DATA			SOURCE DATA STATOR DATA STATOR DATA			SOURCE DATA STATOR DATA STATOR DATA		
			FIXED INST. FIXED INST. FLOW. INST.			FIXED INST. FIXED INST. FLOW. INST.			FIXED INST. FIXED INST. FLOW. INST.		
			Total Pressure Ratio = 1.3429			Total Pressure Ratio = 0.9617			Total Pressure Ratio = 0.9524		
			Polytropic Efficiency = 0.7211			Polytropic Efficiency = 0.8831			Polytropic Efficiency = 0.8831		
			Percent Design Speed = 100.2			Percent Design Speed = 100.2			Percent Design Speed = 100.2		
			Cor. Nozzle Weight Flow = 216.9			Cor. Nozzle Weight Flow = 216.9			Cor. Nozzle Weight Flow = 216.9		
			IE Check Flow/Noz.Flow = 0.9525			IE Check Flow/Noz.Flow = 0.9514			IE Check Flow/Noz.Flow = 0.9514		
			Assumed IE Flow Coeff. = 0.9550			Assumed IE Flow Coeff. = 0.9550			Assumed IE Flow Coeff. = 0.9550		

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW 4 NASA TASK IV												
BLADE ELEMENT PERFORMANCE RESULTS												
POINT NUMBER 13 READING NUMBER 17 DATE 6/18/1978												
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN	INCID ANG CM	INCID ANG LB	SUCT SURE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	63.90	-11.16	60.60	3.30	3.30	3.30	0.60	678.68	1532.94	873.34	-13.69	1374.59
2	61.28	-10.76	59.61	1.65	1.65	1.65	-1.38	787.84	1330.23	735.19	69.72	1340.63
3	54.67	-1.22	56.01	-1.34	-1.34	-1.34	-1.60	838.89	1456.33	838.68	17.69	1183.23
4	52.06	1.08	52.56	-0.50	-0.50	-0.50	-0.34	824.75	1338.65	822.23	15.43	1054.52
5	49.50	0.02	49.71	-0.21	-0.21	-0.21	-0.60	850.93	1288.66	799.69	0.33	936.31
6	49.25	-0.17	47.11	2.64	2.64	2.64	-5.82	677.32	1054.17	669.29	-1.96	790.58
7	49.76	-0.94	46.13	3.63	3.63	3.63	-4.21	666.65	1003.49	633.64	-4.85	748.73
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	58.72	41.60	54.80	3.92	3.92	3.92	712.25	1024.57	531.43	471.84	674.68	
2	57.72	38.05	54.42	3.30	3.30	3.30	788.67	1043.79	556.92	435.94	881.67	
3	53.53	40.78	50.68	2.47	2.47	2.47	720.98	910.18	545.82	476.83	728.22	
4	49.84	42.45	43.79	6.05	6.05	6.05	686.62	798.54	513.90	470.16	608.67	
5	41.99	43.56	32.15	9.54	7.81	7.81	718.93	697.72	520.03	494.54	463.16	
6	33.98	48.20	14.29	19.69	15.87	15.87	706.08	569.67	467.32	522.72	314.97	
7	32.68	52.89	8.00	14.68	21.08	21.08	776.59	513.34	464.64	614.12	194.19	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS	TOT PRESS LOSS	EFFICIENCY	ABD. EFFICIENCY	POLY. EFFICIENCY	MEAS. T RISE	STAT. PRESS COEFF
1	1360.90	0.628	1.418	0.789	1.3340	0.159	0.031	0.7981	0.8122	0.8122	0.450	0.449
2	1330.91	0.687	1.425	0.758	1.3360	0.134	0.026	0.8269	0.8331	0.8331	0.424	0.478
3	1201.13	0.791	1.567	0.651	1.3580	0.095	0.019	0.8780	0.8866	0.8866	0.476	0.586
4	1367.76	0.776	1.259	0.625	1.3840	0.096	0.019	0.8814	0.8892	0.8892	0.506	0.638
5	936.64	0.751	1.162	0.650	1.39060	0.052	0.010	0.9373	0.9413	0.9413	0.542	0.675
6	788.03	0.645	0.975	0.698	2.0210	0.090	0.017	0.9242	0.9198	0.9198	0.694	0.694
7	743.98	0.616	0.926	0.733	2.3390	0.085	0.017	0.9262	0.9309	0.9309	0.626	0.715
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	DIFFUSION FACTOR	PERCENT INCREASION	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	FIXED INST. FIXED INST. TRAV. INST.
1	1461.52	0.599	1.174	0.450	1.3340	1.159	1.159	1.159	1.159	Total Pressure Ratio = 1.6192	1.6407	1.6537
2	1317.61	0.602	1.177	0.476	1.3360	1.193	1.193	1.193	1.193	Adequate Efficiency = 0.8509	0.8759	0.9546
3	1199.05	0.615	1.176	0.488	1.3580	1.169	1.169	1.169	1.169	Polytropic Efficiency = 0.8607	0.8842	0.9577
4	1079.03	0.596	1.174	0.476	1.3840	1.152	1.152	1.152	1.152	Percent Design Speed = 100.2		
5	957.70	0.619	1.174	0.476	1.39060	1.153	1.153	1.153	1.153	Cor. Nozzle Weight Flow = 212.6		
6	837.68	0.609	1.174	0.476	2.0210	1.159	1.159	1.159	1.159	Discharge Valve Setting = 9.0		
7	808.31	0.671	1.174	0.476	2.3390	1.156	1.156	1.156	1.156			
RADIAL POSITION	PERCENT INCREASION	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY	STAGE DATA ROTOR DATA	FIXED INST. FIXED INST. TRAV. INST.				
1	5.0000	1.714	1.702	1.671	1.198							
2	10.0000	1.704	1.677	1.679	1.193							
3	30.0000	1.705	1.670	1.678	1.182							
4	50.0000	1.644	1.653	1.625	1.169							
5	70.0000	1.620	1.646	1.592	1.152							
6	90.0000	1.563	1.642	1.579	1.153							
7	95.0000	1.655	1.659	1.602	1.156							
										TE Check Flow/Noz.Flow = 1.0468		
										Assumed IE Flow Coeff. = 0.9950		
										Assumed IE Flow Coeff. = 0.9500		

061870 STATOR BLADE ROW - NASA TASK IV
 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

BLADE ELEMENT PERFORMANCE RESULTS													
POINT NUMBER		13		READING NUMBER		77		DATE		6/18/77		770	
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT ABS YANG VEL
1	41.43	37.47	39.11	1.96	42.65	715.60	531.47	536.150	473.154	473.154	531.47	536.150	473.154
2	37.47	39.11	-1.64	9.91	37.94	719.28	585.81	570.86	437.53	437.53	585.81	570.86	437.53
3	39.11	39.01	-0.17	9.63	37.74	750.39	595.07	584.24	470.38	470.38	595.07	584.24	470.38
4	40.01	40.80	0.21	9.95	39.52	725.37	544.37	554.61	465.48	465.48	544.37	554.61	465.48
5	40.85	40.86	-0.01	9.24	42.53	743.65	518.84	559.81	484.09	484.09	518.84	559.81	484.09
6	45.64	48.22	3.42	7.42	48.48	710.62	527.48	492.91	503.98	492.91	527.48	503.98	503.98
7	50.39	42.76	7.63	11.23	51.92	771.35	512.97	487.89	589.61	487.89	512.97	589.61	589.61
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	DIFFUSION FACTOR	CHI	
1	-1.22	-0.47	-11.19	9.91	42.65	531.47	531.47	531.47	11.27	11.27	0.479	0.251	
2	-0.47	1.08	-10.10	9.63	37.94	585.81	585.81	585.81	4.80	4.80	0.384	0.266	
3	1.08	0.49	-8.87	9.95	37.74	595.07	595.07	595.07	11.16	11.16	0.394	0.281	
4	0.49	-1.68	-8.75	9.24	39.52	544.37	543.75	543.75	4.61	4.61	0.431	0.360	
5	-1.68	2.16	-9.10	7.42	42.53	518.84	517.33	517.33	15.17	15.17	0.479	0.407	
6	2.16	-1.13	-10.58	12.74	48.48	527.48	525.47	525.47	10.81	10.81	0.421	0.433	
7	-1.13		-12.36	11.23	51.92	512.97	511.22	511.22	10.09	10.09	0.451	0.360	
RADIAL POSITION	RBTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	TGT PRESS LOSS PARAM	POLY MOMEN RISE/ MEAS T RISE	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ STAY PRESS RISE COEFF		
1	0.602	0.602	0.444	1.5230	0.139	0.048	0.048	0.5749	0.7936	0.7936	0.234		
2	0.612	0.612	0.492	1.5440	0.059	0.019	0.019	0.7936	0.7936	0.7936	0.249		
3	0.642	0.642	0.503	1.76310	0.043	0.013	0.013	0.7661	0.7661	0.7661	0.261		
4	0.642	0.642	0.440	1.7420	0.038	0.010	0.010	0.8328	0.8328	0.8328	0.261		
5	0.613	0.613	0.441	1.8800	0.036	0.009	0.009	0.8047	0.8047	0.8047	0.283		
6	0.666	0.666	0.449	2.0510	0.063	0.016	0.016	0.9732	0.9732	0.9732	0.411		
7			0.455	2.0980	0.104	0.025	0.025	0.6595	0.6595	0.6595	0.360		
RADIAL POSITION	PERCENT REJECTION	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA STATOR DATA STATOR DATA					
1	30.0000	0.994	0.984	0.989	1.000	1.000	PERFORMANCE PARAMETERS	STAGE DATA STATOR DATA STATOR DATA					
2	30.0000	0.982	1.001	0.987	1.000	1.000	Total Pressure Ratio =	1.6192	0.9869	0.9758			
3	30.0000	0.976	0.995	0.990	1.000	1.000	Polytropic Efficiency =	0.8607	0.9734	0.9576			
4	30.0000	0.981	0.997	0.992	1.000	1.000	Percent Design Speed =	100.2					
5	30.0000	0.972	0.990	0.991	1.000	1.000	Cor. Nozzle Weight Flow =	212.6					
6	30.0000	0.997	0.995	0.996	1.000	1.000	Discharge Valve Setting =	9.0					
7	30.0000	0.944	0.987	0.978	1.000	1.000	LE Check Flow/Noz.Flow =	0.9458					

TE Check Flow/Noz.Flow = 0.9248
 Assumed LE Flow Coeff. = 0.9350

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK 1V		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 15		READING NUMBER 79		DATE 6/18/79		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	66.07	51.21	60.60	5.41	2.77	613.67	4503.17	609.03	612.84	3372.17
2	64.13	49.52	59.61	4.52	3.49	649.79	4484.93	647.48	657.84	3335.22
3	58.72	46.01	52.56	2.71	2.75	734.73	4157.18	734.65	709.70	2009.45
4	56.92	44.68	49.71	4.36	2.18	711.98	3501.33	709.61	720.77	1089.50
5	54.55	42.47	47.11	6.74	26.95	697.56	3190.25	687.27	699.69	965.25
6	53.82	41.37	46.13	7.28	58.70	616.93	1017.23	591.77	621.36	809.08
7	53.33	41.37	46.13	7.28	58.70	592.79	960.97	563.31	613.44	756.46
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN YE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	57.65	47.99	54.80	2.85	8.42	748.56	935.85	500.18	555.26	789.71
2	57.16	44.55	54.42	2.74	8.97	730.83	958.81	519.44	511.26	804.83
3	54.01	45.59	50.68	3.33	6.71	713.74	850.11	499.49	509.90	687.77
4	47.70	43.79	43.79	3.91	9.22	728.83	727.11	489.29	548.06	537.73
5	43.17	49.91	33.15	11.02	11.37	699.84	618.11	449.95	534.45	422.15
6	34.03	54.13	14.29	19.74	18.79	697.56	499.81	406.49	562.22	274.50
7	19.11	56.82	8.00	11.11	34.22	791.98	468.79	430.44	658.26	149.12
RADIAL POSITION	ROTOR SPD AT INLET	INLET REL MACH NO	AXIAL VEL	INLET REL MACH NO	DIFFUSION FACTOR					
1	3359.33	1.385	0.821	0.821	0.318					
2	3329.38	1.372	0.802	0.802	0.481					
3	3199.74	1.317	0.684	0.684	0.521					
4	3068.73	1.207	0.690	0.690	0.570					
5	935.56	1.102	0.655	0.655	0.606					
6	787.72	0.934	0.687	0.687	0.645					
7	743.02	0.882	0.764	0.764	0.672					
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	SOLIDITY	EXIT ABS MACH NO	LOSS EFFICIENT	TOT PRESS LOSS	POLY MOMEN EFFICIENCY	STAT PRESS COEFF		
1	3344.97	1.624	1.3340	1.3340	0.186	0.037	0.8098	0.866		
2	3316.09	1.614	1.3690	1.3690	0.178	0.035	0.815	0.386		
3	3197.67	1.603	1.5080	1.5080	0.148	0.023	0.8460	0.490		
4	3077.79	1.618	1.6840	1.6840	0.188	0.022	0.8831	0.357		
5	956.60	1.598	1.9060	1.9060	0.075	0.014	0.9205	0.633		
6	836.72	1.598	2.2170	2.2170	0.092	0.017	0.9218	0.759		
7	807.36	1.680	2.3390	2.3390	0.116	0.023	0.9108	0.845		
RADIAL POSITION	PERCENT THROUGH	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TRAV TOT PRESS RATIO	TEMP RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA	ROTOR DATA	ROTOR DATA
1	9.0000	1.844	1.241	1.241	1.229	1.226	Total Pressure Ratio = 1.6931	FIXED INST. FIXED INST. TRAV. INST. = 1.6931	1.7551	1.7456
2	10.0000	1.814	1.214	1.214	1.261	1.266	Adiabatic Efficiency = 0.8293	0.8610	0.8610	0.9104
3	38.0000	1.777	1.194	1.194	3.189	3.166	Polytropic Efficiency = 0.8914	0.8914	0.8914	0.9113
4	50.0000	1.744	1.184	1.184	1.166	1.166	Percent Design Speed = 100.1	Discharge Valve Setting = 6.0		
5	78.0000	1.658	1.164	1.164	1.163	1.166	Cor. Nozzle Weight Flow = 199.2			
6	90.0000	1.613	1.154	1.154	1.163	1.166				
7	92.0000	1.735	1.178	1.178	1.166	1.166				
OVERALL PERFORMANCE SUMMARY										
STAGE DATA ROTOR DATA ROTOR DATA										
FIXED INST. FIXED INST. TRAV. INST.										
Total Pressure Ratio = 1.6931										
Adiabatic Efficiency = 0.8293										
Polytropic Efficiency = 0.8914										
Percent Design Speed = 100.1										
Cor. Nozzle Weight Flow = 199.2										
IE Check Flow/Noz.Flow = 1.0520										
Assumed IE Flow Coeff. = 0.9850										
TE Check Flow/Noz.Flow = 0.9538										
Assumed TE Flow Coeff. = 0.9500										

061070 STATOR BLADE ROW 4 NASA TASK IV
 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

POINT NUMBER 15		BEADING NUMBER 79		DATE 6/10/970							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURE	INLET REL VELOCITY	INLET ABS VELOCITY	INLET AX TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL
1	47.83	43.97	39.47	6.56	751.93	507.81	531.94	527.27	531.94	527.27	531.94
2	43.72	39.01	4.72	4.72	737.38	532.74	509.42	509.42	509.42	509.42	509.42
3	45.42	39.80	5.62	5.62	751.80	526.87	534.69	534.69	534.69	534.69	534.69
4	47.36	40.86	6.56	6.56	713.97	481.81	523.15	523.15	523.15	523.15	523.15
5	31.73	42.22	9.51	9.51	694.83	427.68	542.07	542.07	542.07	542.07	542.07
6	58.16	42.75	13.79	13.79	781.65	451.52	631.99	631.99	631.99	631.99	631.99
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DIFFUSION CH1
 FACTOR 0.244
 0.289
 0.411
 0.815
 0.388
 0.490
 0.538
 0.417

POLY MOMEN RISE/ STAY PRESS
 COEFF 0.246
 0.270
 0.295
 0.345
 0.448
 0.517
 0.391

MEAS T RISE
 1.6931
 0.8414
 0.9815
 0.9657
 0.9713
 0.9336

DISCHARGE VALVE SETTING= 6.0

TE Check Flow/Noz.Flow = 0.9588
 Assumed TE Flow Coeff. = 0.9550

PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6931
 Polytropic Efficiency = 0.8414
 Percent Design Speed = 100.1
 Cor. Nozzle Weight Flow = 199.2

OVERALL PERFORMANCE SUMMARY
 STATOR DATA STATOR DATA
 STATOR DATA STATOR DATA
 STATOR DATA STATOR DATA

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

POINT NUMBER 11		BLADE ELEMENT PERFORMANCE RESULTS		READING NUMBER 142		DATE 6/26/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCIB ANG MN CHBR LN	INCID ANG SUCT SUPL	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	67.25	-1.47	60.60	6.65	3.95	1493.55	1493.55	576.14	-14.79	1373.92
2	65.79	-0.89	59.61	6.18	3.15	604.86	1468.44	601.87	79.30	1338.48
3	60.21	-1.84	58.04	4.26	-0.126	694.81	1396.67	693.88	-12.55	1212.11
4	58.49	-2.80	56.56	5.93	0.109	676.49	1390.20	673.76	-30.55	1099.11
5	56.09	-2.95	49.71	6.38	0.41	651.44	1172.74	651.43	-33.58	968.99
6	58.36	-2.80	47.11	8.25	0.59	587.45	1002.41	583.22	-27.56	815.16
7	59.56	-2.47	46.13	9.43	1.53	582.69	943.74	524.90	-22.65	765.56
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	56.02	51.71	54.80	1.22	11.23	790.35	875.86	488.97	619.41	725.35
2	59.52	46.99	54.62	1.16	10.27	764.24	920.37	520.50	558.00	757.90
3	53.35	48.89	50.68	2.67	6.86	730.23	832.25	484.82	545.92	651.57
4	47.25	50.64	43.79	3.46	11.24	738.59	698.06	468.38	570.98	506.65
5	42.23	53.44	32.15	10.08	13.86	712.58	578.56	423.90	571.70	384.75
6	30.30	54.82	14.29	16.01	25.06	726.72	489.41	417.65	592.55	244.04
7	17.30	56.74	8.00	9.38	38.12	807.17	478.02	439.65	670.33	136.93
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PERAM	ADB EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF	DIFFUSION FACTOR
1	1359.12	0.583	1.368	0.849	0.232	0.049	0.7581	0.7778	0.359	0.571
2	1329.18	0.555	1.349	0.855	0.207	0.043	0.7829	0.8004	0.382	0.514
3	1199.56	0.644	1.296	0.699	0.141	0.028	0.8466	0.8584	0.480	0.551
4	1068.56	0.627	1.196	0.693	0.139	0.028	0.8537	0.8643	0.540	0.604
5	935.41	0.612	1.086	0.652	0.118	0.023	0.8795	0.8876	0.642	0.647
6	787.60	0.540	0.923	0.742	0.152	0.030	0.8737	0.8819	0.675	0.655
7	742.91	0.508	0.867	0.838	0.177	0.036	0.8664	0.8750	0.710	0.666
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	FIXED TOT TEMP RATIO	FIXED TOT PRESS RATIO	PERFORMANCE PARAMETERS	OVERALL PERFORMANCE SUMMARY		
1	1344.76	0.654	0.725	1.3348	1.250	1.833	Total Pressure Ratio = 1.6920	STAGE DATA ROTOR DATA ROTOR DATA		
2	1315.69	0.639	0.759	1.3498	1.240	1.826	Adiabatic Efficiency = 0.7886	FIXED INST. FIXED INST. TRAV. INST.		
3	1197.49	0.615	0.685	1.5086	1.171	1.771	Polytropic Efficiency = 0.8037	1.7362 0.8304 1.7724		
4	1077.62	0.626	0.584	1.6846	1.193	1.706	Percent Design Speed = 100.1	0.7886 0.8304 0.8676		
5	956.45	0.609	0.490	1.9066	1.172	1.637	Cor. Nozzle Weight Flow = 190.4	0.8037 0.8430 0.8778		
6	836.59	0.627	0.421	2.2178	1.167	1.567	IE Check Flow/Noz.Flow = 1.0709	Discharge Valve Setting = 5.0		
7	807.26	0.696	0.405	2.3358	1.187	1.602	Assumed IE Flow Coeff. = 0.9850	TE Check Flow/Noz.Flow = 0.9770		
RADIAL POSITION	PERCENT DIMENSION	PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	PERCENT DIMENSION	Assumed IE Flow Coeff. = 0.9500		
1	5.0000	1.904	1.254	1.250	1.833	1.833	5.0000	TE Check Flow/Noz.Flow = 0.9770		
2	10.0000	1.867	1.234	1.240	1.826	1.826	10.0000	Assumed IE Flow Coeff. = 0.9500		
3	80.0000	1.800	1.205	1.171	1.771	1.771	80.0000			
4	50.0000	1.761	1.198	1.193	1.706	1.706	50.0000			
5	70.0000	1.667	1.175	1.172	1.637	1.637	70.0000			
6	90.0000	1.632	1.166	1.167	1.567	1.567	90.0000			
7	95.0000	1.742	1.188	1.187	1.602	1.602	95.0000			

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW - NASA TASK IX									
		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER 13 READING NUMBER 142 DATE 6/26/1970									
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LM LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SURF	INLET ABS VELOCITY	INLET REL VELOCITY	EXIT AX VELOCITY	EXIT ABS VELOCITY	INLET AX VELOCITY	INLET ABS VELOCITY
1		51.96	39.47	12.09	773.14	793.70	493.47	538.00	603.38	493.47	621.65
2		46.42	39.11	7.32	751.47	773.14	538.00	516.59	628.33	538.00	560.02
3		46.55	39.04	7.54	728.12	751.47	516.59	503.61	573.28	516.59	545.39
4		48.30	38.80	8.50	722.94	728.12	503.61	453.25	506.61	503.61	565.30
5		50.99	40.88	10.13	725.85	722.94	453.25	439.72	440.31	453.25	559.61
6		52.42	42.22	10.26	725.85	725.85	439.72	461.39	408.08	439.72	571.31
7		54.56	48.76	11.66	796.94	725.85	461.39	382.26	44.18	461.39	643.58
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LM RE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS VELOCITY	INLET AX VELOCITY	INLET ABS VELOCITY
1		1.06	-11.13	12.19	50.90	603.49	603.38	603.38	11.17	603.38	11.17
2		2.69	-10.10	12.70	43.73	629.06	628.33	29.48	29.48	628.33	29.48
3		0.01	-8.87	8.88	46.54	573.92	573.28	0.09	0.09	573.28	0.09
4		-0.96	-8.75	7.79	49.27	507.24	506.61	-8.51	-8.51	506.61	-8.51
5		-2.33	-9.10	6.77	53.33	441.82	440.31	440.31	440.31	440.31	-17.93
6		6.18	-10.58	16.76	46.24	431.72	408.08	408.08	44.18	408.08	44.18
7		-0.88	-12.36	11.48	59.24	383.94	382.26	382.26	-5.185	382.26	-5.185
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS SOLIDITY COEFFICIENT	LOSS PARAM	EFFICIENCY	POLY MOMEN RISE/RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CHI
1		0.697	0.697	1.223	1.5238	0.042	0.047	0.5032	0.188	0.492	0.204
2		0.647	0.647	1.179	1.5446	0.097	0.031	0.6945	0.214	0.408	0.232
3		0.635	0.635	1.116	1.6316	0.107	0.033	0.6613	0.253	0.459	0.272
4		0.643	0.643	1.006	1.7428	0.105	0.030	0.6368	0.323	0.547	0.345
5		0.618	0.618	0.974	1.8800	0.084	0.022	0.7819	0.449	0.599	0.472
6		0.623	0.623	0.928	2.0518	0.100	0.024	0.7858	0.505	0.606	0.528
7		0.686	0.686	0.828	2.0986	0.073	0.037	0.9673	0.659	0.709	0.428
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	LOSS PARAM	LOSS COEFFICIENT	EFFICIENCY	POLY MOMEN RISE/RISE	STAT PRESS RISE COEFF	OVERALL PERFORMANCE SUMMARY	STATOR DATA
1		0.496	0.496	0.941	1.5238	0.142	0.047	0.5032	0.188	STAGE DATA	STATOR DATA
2		0.478	0.478	0.971	1.5446	0.097	0.031	0.6945	0.214	FIXED INST, FIXED INST, TRAV. INST.	FIXED INST, FIXED INST, TRAV. INST.
3		0.483	0.483	0.995	1.6316	0.107	0.033	0.6613	0.253	Total Pressure Ratio =	1.6920
4		0.470	0.470	0.989	1.7428	0.105	0.030	0.6368	0.323	Polytropic Efficiency =	0.9745
5		0.470	0.470	0.992	1.8800	0.084	0.022	0.7819	0.449	Percent Design Speed =	100.1
6		0.446	0.446	0.962	2.0518	0.100	0.024	0.7858	0.505	Cor. Nozzle Weight Flow =	190.4
7		0.421	0.421	0.965	2.0986	0.073	0.037	0.9673	0.659	TE Check Flow/Noz.Flow =	0.9821
										Assumed IE Flow Coeff. =	0.9550

Discharge Valve Setting= 5.0

TE Check Flow/Noz.Flow = 1.0168
Assumed IE Flow Coeff. = 0.9350

062670 ROTOR BLADE ROW - NASA TASK IX
 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

POINT NUMBER 12		BLADE ELEMENT PERFORMANCE RESULTS		DATE						
ROTOR BLADE ROW - NASA TASK IX		6/26/1970								
RADIAL POSITION	1	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL
	2	63.69	60.60	3.09	0.39	679.36	1523.04	674.14	-3.92	1363.13
	3	61.56	59.61	1.95	1.08	1.08	1518.05	719.49	0.74	1328.52
	4	54.83	54.83	0.88	1.18	836.34	1458.82	836.19	12.82	1186.82
	5	51.87	52.56	0.69	1.64	835.64	1350.83	835.20	7.87	1061.36
	6	49.41	49.71	0.84	0.56	813.67	1243.67	804.36	-3.35	938.83
	7	49.40	47.11	2.29	2.29	705.98	1059.90	677.60	-2.91	790.57
		49.61	46.13	3.48	3.48	676.67	1014.44	643.07	-12.93	755.89
RADIAL POSITION	1	REL EXIT FLOW ANG	CHBR LN LE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
	2	56.20	54.80	3.40	5.49	722.45	1012.17	532.81	485.58	859.27
	3	57.01	54.42	2.59	4.55	720.82	1040.17	565.76	444.32	871.66
	4	52.71	50.66	2.03	2.13	727.13	908.10	558.15	475.23	722.14
	5	49.77	43.79	5.98	2.10	798.27	798.27	512.32	472.16	603.54
	6	41.21	32.13	9.06	8.10	696.81	693.18	520.47	500.73	455.78
	7	33.31	14.29	19.02	16.09	723.93	568.91	467.79	529.26	307.38
		28.00	8.00	34.00	28.64	780.84	509.85	482.93	620.27	187.04
RADIAL POSITION	1	ROTOR SPD AT INLET	INLET REL MACH NO	AXIAL VEL	LOSS COEFFICIENT	LOSS TOT MRE99	DIFFUSION FACTOR	CHI		
	2	1359.21	1.489	0.788	0.159	0.834	0.455	0.458	0.458	0.458
	3	1329.27	1.406	0.788	0.129	0.8359	0.419	0.481	0.481	0.481
	4	1068.63	1.369	0.658	0.078	0.8359	0.480	0.562	0.562	0.562
	5	935.48	1.274	0.615	0.090	0.8359	0.515	0.638	0.638	0.638
	6	787.65	1.169	0.647	0.053	0.8359	0.550	0.675	0.675	0.675
	7	742.96	0.939	0.626	0.022	0.8359	0.582	0.695	0.695	0.695
RADIAL POSITION	1	ROTOR SPD AT EXIT	EXIT REL MACH NO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS PARAM EFFICIENCY	POLY MOMEN RISE/ STAT PRESS			
	2	1344.89	0.890	1.3848	1.1200	0.9998	0.8138	0.8138	0.8138	0.8138
	3	1315.98	0.884	1.3698	1.1193	0.8359	0.8476	0.8476	0.8476	0.8476
	4	1197.57	0.774	1.5088	1.183	0.8359	0.9080	0.9080	0.9080	0.9080
	5	1077.70	0.679	1.6848	1.269	0.8359	0.8878	0.8878	0.8878	0.8878
	6	936.52	0.598	1.9068	1.359	0.8359	0.9354	0.9354	0.9354	0.9354
	7	836.65	0.614	2.2178	1.453	0.8359	0.9116	0.9116	0.9116	0.9116
		807.31	0.675	2.3398	1.532	0.8359	0.9354	0.9354	0.9354	0.9354
RADIAL POSITION	1	PERCENT IMMERSTION	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS PARAM EFFICIENCY	PERFORMANCE PARAMETERS			
	2	5.0000	1.730	1.209	1.180	0.9998	Total Pressure Ratio = 1.6486	1.6486	1.6486	1.6486
	3	10.0000	1.730	1.180	1.183	0.8359	Adiabatic Efficiency = 0.8574	0.8574	0.8574	0.8574
	4	30.0000	1.712	1.173	1.269	0.8359	Polytropic Efficiency = 0.8669	0.8669	0.8669	0.8669
	5	50.0000	1.648	1.157	1.359	0.8359	Percent Design Speed = 100.1	100.1	100.1	100.1
	6	90.0000	1.627	1.142	1.453	0.8359	Cor. Nozzle Weight Flow = 213.2	213.2	213.2	213.2
	7	95.0000	1.567	1.128	1.532	0.8359	Discharge Valve Setting = 9.0	9.0	9.0	9.0
			1.653	1.160	1.593	0.8359				
OVERALL PERFORMANCE SUMMARY										
STAGE DATA ROTOR DATA ROTOR DATA										
FIXED INST. FINED INST. TRAV. INST.										
1.6260 1.6486 1.6711										
0.8574 0.8836 0.9527										
0.8669 0.8915 0.9560										
TE Check Flow/Noz.Flow = 1.0453										
Assumed LE Flow Coeff. = 0.9850										
Assumed TE Flow Coeff. = 0.9500										

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER		READING NUMBER		DATE		
		12		143		672671970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL
1	42.18	39.47	2.72	725.82	537.88	487.33	580.04	537.88	487.33	580.04
2	37.55	39.11	-1.56	731.67	537.88	445.94	589.08	537.88	445.94	589.08
3	38.87	39.01	+0.14	756.92	537.88	474.77	552.83	537.88	474.77	552.83
4	40.22	39.80	0.42	725.29	537.88	467.46	560.35	537.88	467.46	560.35
5	41.18	40.86	0.32	748.92	537.88	490.15	493.43	537.88	490.15	493.43
6	45.96	42.22	3.74	715.48	537.88	510.29	486.08	537.88	510.29	486.08
7	50.78	42.76	8.02	774.49	537.88	595.51		537.88	595.51	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
1	41.89	43.47	9.84	536.84	43.47	536.20	536.20	536.20	536.20	536.20
2	40.32	37.87	9.78	590.69	37.87	590.65	590.65	590.65	590.65	590.65
3	1.01	8.87	9.88	596.65	37.85	596.11	596.11	596.11	596.11	596.11
4	0.38	9.13	8.75	546.35	39.83	545.73	545.73	545.73	545.73	545.73
5	0.33	8.57	41.71	519.97	41.71	518.83	518.83	518.83	518.83	518.83
6	1.01	11.59	44.95	516.45	44.95	514.78	514.78	514.78	514.78	514.78
7	-2.21	10.15	52.89	477.21	52.89	495.24	495.24	495.24	495.24	495.24
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	AXIAL VEC RATIO	INLET REL MACH NO	DIFFUSION FACTOR	CHI				
1	0.610	0.997	1.018	0.997	0.487	0.246				
2	0.683	1.018	1.012	1.018	0.391	0.265				
3	0.648	0.987	0.987	0.987	0.283	0.283				
4	0.623	0.926	0.926	0.926	0.429	0.162				
5	0.647	1.043	1.043	1.043	0.479	0.1404				
6	0.618	1.019	1.019	1.019	0.446	0.1438				
7	0.669				0.544	0.1370				
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	TRAY TOT PRESS RATIO	EXIT REL MACH NO	TOT PRES LOSS PARAM	POLY MOMEN RISE/ MEAS T RISE	EFFICIENCY	ABB EFFICIENCY	STAT PRESS COEFF	
1	0.447	0.982	0.982	0.982	0.047	0.5591	0.5591	0.5591	0.229	
2	0.496	1.000	1.000	1.000	0.040	0.7639	0.7639	0.7639	0.247	
3	0.504	1.000	1.000	1.000	0.047	0.7580	0.7580	0.7580	0.263	
4	0.482	1.000	1.000	1.000	0.034	0.8444	0.8444	0.8444	0.341	
5	0.442	1.000	1.000	1.000	0.038	0.9229	0.9229	0.9229	0.380	
6	0.439	1.000	1.000	1.000	0.065	0.9230	0.9230	0.9230	0.415	
7	0.422	1.000	1.000	1.000	0.078	0.6444	0.6444	0.6444	0.345	
RADIAL POSITION	TRAY TOT PRESS RATIO	TRAY TOT PRESS RATIO	FIXED TOT TEMP RATIO	FIXED TOT PRESS RATIO	PERFORMANCE PARAMETERS	STAGE DATA	STATOR DATA	STATOR DATA		
1	0.951	0.982	1.000	1.000	Total Pressure Ratio =	FIXED INST. FIXED INST. TRAY. INST.				
2	0.978	1.000	1.000	1.000	Polytropic Efficiency =	1.6260	0.9863	0.9734		
3	0.974	1.000	1.000	1.000	Percent Design Speed =	0.8669	0.9724	0.9439		
4	0.982	1.000	1.000	1.000	Cor. Nozzle Weight Flow =					
5	0.970	1.000	1.000	1.000						
6	0.990	1.000	1.000	1.000						
7	0.939	1.000	1.000	1.000						

OVERALL PERFORMANCE SUMMARY
 STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAY. INST.
 Total Pressure Ratio = 1.6260 0.9863 0.9734
 Polytropic Efficiency = 0.8669 0.9724 0.9439
 Percent Design Speed = 100.1 Discharge Valve Setting=9.0
 Cor. Nozzle Weight Flow = 213.2
 IE Check Flow/Noz.Flow = 0.9480 TE Check Flow/Noz.Flow = 0.9243
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350

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BLADE ELEMENT PERFORMANCE RESULTS										
POINT NUMBER 13 READING NUMBER 44 DATE 6/26/1970										
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLB ANG MN CMR LN	INDIP ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	63.23	-0.84	60.60	2.03	50.07	692.83	1528.72	687.51	-4.07	1362.72
2	61.56	0.08	59.61	1.98	51.08	721.74	1518.16	719.17	1.03	1327.68
3	54.36	0.71	56.01	*1.09	50.11	822.26	1462.57	852.17	10.50	1188.64
4	50.42	1.49	52.96	*2.98	51.98	867.33	1359.36	864.54	22.54	1045.65
5	47.63	0.70	49.71	42.08	53.87	855.74	1259.75	843.62	10.36	924.73
6	47.18	0.56	47.41	0.07	57.59	753.26	1084.49	728.95	7.09	780.24
7	47.75	0.05	46.13	1.62	56.28	709.26	1026.54	674.16	0.53	742.12

RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	REL TWIN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	59.85	24.07	54.80	5.05	31.38	681.20	1235.54	619.98	277.00	1067.30
2	59.09	41.07	54.42	4.07	21.46	684.62	1228.65	627.97	266.42	1049.01
3	59.77	27.33	50.68	5.09	1.41	678.61	1073.33	602.53	311.37	885.70
4	49.31	33.40	43.79	1.11	678.61	906.71	889.84	591.41	389.84	687.41
5	46.87	33.21	32.15	8.72	4.75	752.21	829.43	625.95	414.43	541.69
6	27.01	38.39	14.29	12.72	20.17	827.37	729.88	642.30	508.83	327.47
7	20.35	42.82	6.00	12.35	21.60	858.29	676.55	621.89	576.31	230.66

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	AXIAL VEL BATIO	LOSS COEFFICIENT	YDI WREAR LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ HEAT RISE	STAT PRESS RISE COEFF	CHI
1	1358.65	0.641	1.415	0.902	0.030	0.6854	0.6974	0.186	0.279
2	1328.71	0.670	1.404	0.873	0.019	0.8117	0.8197	0.205	0.300
3	1199.14	0.805	0.707	1.508	0.017	0.8385	0.8462	0.318	0.414
4	1068.19	0.821	0.684	1.688	0.027	0.8768	0.7873	0.410	0.478
5	935.09	0.808	0.742	1.908	0.019	0.8528	0.8598	0.483	0.534
6	787.33	0.703	0.888	2.217	0.026	0.8582	0.8659	0.517	0.506
7	742.65	0.699	0.922	2.338	0.029	0.8515	0.8595	0.527	0.484

RADIAL POSITION	PERCENT EXCURSION	TRAV TOT PRESS RATIO	TRAV TOT VEAR RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO
1	9.0000	1.365	1.118	1.319	1.119
2	10.0800	1.368	1.106	1.317	1.112
3	50.0800	1.381	1.107	1.423	1.123
4	50.0800	1.402	1.123	1.405	1.132
5	90.0800	1.439	1.114	1.422	1.139
6	90.0800	1.511	1.129	1.449	1.139
7	95.0800	1.550	1.139	1.477	1.139

OVERALL PERFORMANCE SUMMARY	
STAGE DATA	ROTOR DATA
FIXED INST, FIXED INST, TRAV. INST.	ROTOR DATA
PERFORMANCE PARAMETERS	
Total Pressure Ratio =	1.3468
Adiabatic Efficiency =	0.7100
Polytropic Efficiency =	0.7220
Percent Design Speed =	100.1
Cor. Nozzle Weight Flow =	217.3
Discharge Valve Settings= 30.0	

IE Check Flow/Noz.Flow = 1.0358	
Assumed IE Flow Coeff. = 0.950	
TE Check Flow/Noz.Flow = 0.9477	
Assumed TE Flow Coeff. = 0.950	

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 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

POINT NUMBER 13		BLADE ELEMENT PERFORMANCE RESULTS		DATE						
READING NUMBER 44		6/26/1970								
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LM LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUBT 9UMF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	23.93	22.50	39.47	-15.54	695.32	626.40	645.43	626.40	278.00	278.00
2	25.60	22.50	39.11	-16.64	696.65	645.43	645.43	645.43	267.39	267.39
3	30.95	22.50	39.01	-13.41	720.85	649.25	649.25	649.25	311.07	311.07
4	38.71	30.95	39.80	-8.89	792.14	643.57	643.57	643.57	385.96	385.96
5	35.52	38.71	40.86	-10.19	799.51	682.98	682.98	682.98	405.67	405.67
6	40.00	35.52	42.22	-6.78	853.66	687.35	687.35	687.35	490.60	490.60
7		40.00	42.76	22.76	870.53	659.47	659.47	659.47	553.31	553.31
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LM TE ANGLE	ANG TB	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	3.10	3.10	-13.13	12.23	22.83	632.92	632.80	632.80	12.16	12.16
2	0.81	0.81	-10.10	10.31	22.50	704.87	704.83	704.83	2.56	2.56
3	0.62	0.62	-8.87	8.25	26.122	734.89	734.54	734.54	-7.98	-7.98
4	0.49	0.49	-8.75	9.24	30.466	750.36	749.50	749.50	6.39	6.39
5	2.22	2.22	-9.10	6.88	32.93	778.66	776.41	776.41	-30.14	-30.14
6	1.61	1.61	-10.58	12.19	38.91	872.71	869.68	869.68	24.45	24.45
7	1.88	1.88	-12.36	13.64	38.72	839.87	836.16	836.16	18.64	18.64
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CH1				
1	0.597	1.018	1.018	0.204	0.204	0.165				
2	0.613	1.092	1.092	0.114	0.114	0.144				
3	0.633	1.132	1.132	0.115	0.115	0.137				
4	0.658	1.165	1.165	0.146	0.146	0.107				
5	0.706	1.137	1.137	0.170	0.170	0.144				
6	0.755	1.265	1.265	0.108	0.108	0.156				
7	0.769	1.268	1.268	0.179	0.179	0.245				
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS POLYMER LOSS	TOT PRESS POLYMER LOSS	ADP EFFICIENCY	POLY MOMEN RISE/MEAS T RISE	STAT PRESS RISE COEFF	
1	0.552	1.5230	1.5230	0.220	0.072	0.072	-1.2158	5.7866	-0.119	
2	0.581	1.5440	1.5440	0.147	0.048	0.048	5.7866	3.4305	0.130	
3	0.646	1.6316	1.6316	0.162	0.050	0.050	3.4305	33.8735	0.123	
4	0.659	1.7428	1.7428	0.145	0.059	0.059	-3.5987	5.3096	0.055	
5	0.689	1.8800	1.8800	0.115	0.051	0.051	5.3096	-4.0785	0.125	
6	0.775	2.0510	2.0510	0.201	0.049	0.049	0.076		0.1215	
7	0.742	2.0980	2.0980	0.234	0.076	0.076			0.1204	
RADIAL POSITION	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STATOR DATA	STATOR DATA	STATOR DATA		
1	0.927	0.989	0.989	1.000	Total Pressure Ratio =	FIXED INST. FIXED INST. TRAV. INST.	FIXED INST. FIXED INST. TRAV. INST.	FIXED INST. FIXED INST. TRAV. INST.		
2	0.969	0.993	0.993	1.000	1.3468	0.9586	0.9501	0.9501		
3	0.973	1.000	1.000	1.000	Polytropic Efficiency =	0.7220	0.8758	0.8758		
4	0.989	0.992	0.992	1.000	Percent Design Speed =	100.1	Discharge Valve Setting=	30.0		
5	0.956	0.996	0.996	1.000	Cor. Nozzle Weight Flow=	217.3				
6	0.949	0.996	0.996	1.000	LE Check Flow/Noz.Flow =	0.9527	TE Check Flow/Noz.Flow =	0.9538		
7	0.880	0.921	0.921	1.000	Assumed LE Flow Coeff. =	0.9550	Assumed TE Flow Coeff. =	0.9550		

OVERALL PERFORMANCE SUMMARY

STATOR DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.3468 0.9586 0.9501
 Polytropic Efficiency = 0.7220 0.8758
 Percent Design Speed = 100.1 Discharge Valve Setting= 30.0
 Cor. Nozzle Weight Flow= 217.3
 LE Check Flow/Noz.Flow = 0.9527 TE Check Flow/Noz.Flow = 0.9538
 Assumed LE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9550

081770 **TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)**

ROTOR BLADE ROW - NASA TASK IV											
BLADE ELEMENT PERFORMANCE RESULTS											
POINT NUMBER 14 8/17/1970											
PATIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG HN CHBR LN	INCLD ANG SUCT SUCK LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ARS YAW VEL	INLET REL YAW VEL	EXIT REL YAW VEL
1	67.93	31.88	60.90	7.33	8.63	562.14	1485.46	557.53	518.33	1375.11	718.37
2	66.59	31.76	59.61	6.98	8.95	584.03	1488.26	582.30	517.91	1348.79	758.19
3	61.41	31.37	56.01	5.49	9.94	661.54	1361.89	661.54	537.08	1218.36	651.92
4	57.20	33.40	52.58	6.62	9.74	651.19	1280.45	651.22	537.08	1098.80	511.47
5	57.20	33.42	49.71	7.49	8.70	635.75	1180.20	625.85	537.43	971.23	391.09
6	56.49	33.76	47.11	9.18	8.72	565.38	998.70	544.76	535.77	822.02	246.09
7	56.06	32.04	46.13	9.98	2.03	535.38	955.01	511.45	510.22	750.65	127.55
PATIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG YR	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT RPL VELOCITY	EXIT AX VELOCITY	EXIT ARS YAW VEL	EXIT REL YAW VEL	DIFFUSION CH1
1	57.48	34.38	54.90	2.66	10.45	778.63	843.43	452.89	632.08	718.37	0.458
2	55.78	47.84	54.92	1.76	10.80	761.18	808.14	510.14	563.33	758.19	0.472
3	51.70	48.62	50.68	3.02	11.71	721.48	809.01	478.88	543.50	651.92	0.547
4	47.13	49.92	43.79	3.34	12.05	717.58	697.99	474.84	564.29	511.47	0.588
5	41.26	52.35	32.15	6.61	12.24	737.92	598.03	434.94	563.71	391.09	0.618
6	31.47	55.22	14.29	17.18	25.62	717.16	487.01	406.95	586.06	246.09	0.659
7	16.00	56.75	8.00	8.00	40.05	816.69	478.33	444.69	678.34	127.55	0.702
PATIAL POSITION	ROTOR SPD AT EXIT	INLET ABS MACH NO	INLET REL MACH NO	ARIAL VEL RATIO	LOSS COEFFICIENT	Y6T PRESS LOSS PARAM	ADW EFFICIENCY	POLY MOMEN RISEZ MEAS T RISE	STAY PRESS RISE COEFF	STAGE DATA ROTOR DATA FIXED INST. FIXED INST. TRAV. INST.	
1	142.45	0.642	0.655	1.3386	0.249	0.050	0.7426	0.7832	0.347	1.6786 1.7210 1.7494	
2	131.62	0.616	0.759	1.3690	0.227	0.047	0.7633	0.7821	0.363	0.7805 0.8211 0.8405	
3	1195.42	0.610	0.682	1.5080	0.163	0.032	0.8237	0.8374	0.457	0.7959 0.8342 0.8526	
4	1075.77	0.624	0.591	1.6840	0.134	0.027	0.8587	0.8688	0.520		
5	924.81	0.610	0.501	1.9060	0.121	0.024	0.8771	0.8852	0.589		
6	835.15	0.615	0.414	2.2170	0.128	0.025	0.8938	0.9007	0.701		
7	805.87	0.703	0.407	2.3390	0.118	0.030	0.8912	0.8983	0.791		
PATIAL POSITION	PERCENT DECELERATION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	TOTAL PRESSURE RATIO	ADIABATIC EFFICIENCY	POLYTROPIC EFFICIENCY	PERCENT DESIGN SPEED	COR. NOZZLE WEIGHT FLOW
1	5.0000	1.889	1.267	1.817	1.251					99.9	186.8
2	30.0000	1.819	1.231	1.810	1.242						
3	30.0000	1.772	1.207	1.774	1.209						
4	50.0000	1.745	1.201	1.698	1.199						
5	70.0000	1.658	1.175	1.626	1.170						
6	90.0000	1.615	1.175	1.611	1.163						
7	95.0000	1.745	1.168	1.619	1.166						
OVERALL PERFORMANCE SUMMARY											
Discharge Valve Setting = 4.7											
LE Check Flow/Noz.Flow = 1.0703											
Assumed LE Flow Coeff. = 0.9850											
TE Check Flow/Noz.Flow = 0.9803											
Assumed TE Flow Coeff. = 0.9500											

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

681770

		STATOR BLADE ROW = NASA TASK IV										
		FLADE ELEMENT PERFORMANCE RESULTS					DATE 8/17/1970					
		POINT NUMBER	14	READING NUMBER	287	DATE						
PARTIAL POSITION	REL INLET FLOW ANG	ARS INLET FLOW ANG	INCID ANG	INCID LN	INCID LN	INCID ANG	SUCT SURE	INLET ARS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ARS TANG VEL	INLET REL TANG VEL
1	54.23	54.23	14.76	39.47	14.76	789.83		456.99	456.99	522.29	634.36	634.36
2	47.27	47.27	8.16	35.11	8.16	789.79		522.29	522.29	565.48	565.48	565.48
3	46.79	46.79	7.78	35.01	7.78	745.25		510.10	510.10	542.98	542.98	542.98
4	47.47	47.47	7.77	39.80	7.77	758.03		510.17	510.17	558.68	558.68	558.68
5	49.46	49.46	6.00	40.86	6.00	724.26		465.36	465.36	551.80	551.80	551.80
6	58.84	58.84	10.62	42.22	10.62	711.85		428.23	428.23	565.05	565.05	565.05
7	54.37	54.37	11.61	42.78	11.61	804.39		466.78	466.78	651.77	651.77	651.77
PARTIAL POSITION	REL EXIT FLOW ANG	ARS EXIT FLOW ANG	DEV ANG TE	CMR LN	TE ANGLE	TURN ANGLE	CMR LN	EXIT ARS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS TANG VEL	EXIT REL TANG VEL
1	8.38	8.38	13.51	11.13	13.51	51.85	592.87	591.56	591.56	24.58	24.58	24.58
2	3.59	3.59	13.49	10.18	13.49	43.88	634.48	613.37	613.37	36.36	36.36	36.36
3	0.13	0.13	8.74	8.87	8.74	48.92	552.47	552.24	552.24	1.29	1.29	1.29
4	1.19	1.19	9.94	8.75	9.94	48.37	494.82	493.86	493.86	18.28	18.28	18.28
5	2.24	2.24	9.18	9.18	9.18	52.09	426.11	424.87	424.87	16.59	16.59	16.59
6	7.74	7.74	18.32	10.58	18.32	62.14	412.84	407.55	407.55	55.36	55.36	55.36
7	8.97	8.97	9.39	12.36	9.39	51.34	401.47	399.64	399.64	20.72	20.72	20.72
PARTIAL POSITION	RECTOR SPD AT INLET	INLET REL MACH NO	AXIAL VEL RATIO	INLET REL MACH NO	EXIT REL MACH NO	TOT PRESS LOSS	LOSS COEFFICIENT	SOLIDITY	FIXED TOT PRESS RATIO	TRAV TOT PRESS RATIO	PERCENT DECOMPOSITION	PERCENT DECOMPOSITION
1	0.644	0.644	1.294	1.294	1.294	0.129	0.129	1.5230	0.948	0.976	1.0000	1.0000
2	0.644	0.644	1.174	1.174	1.174	0.104	0.104	1.5640	0.977	0.998	10.0000	10.0000
3	0.629	0.629	1.082	1.082	1.082	0.101	0.101	1.6310	0.976	0.995	30.0000	30.0000
4	0.603	0.603	0.947	0.947	0.947	0.109	0.109	1.7420	0.985	0.946	50.0000	50.0000
5	0.620	0.620	0.918	0.918	0.918	0.085	0.085	1.8000	0.993	0.993	70.0000	70.0000
6	0.611	0.611	0.952	0.952	0.952	0.104	0.104	2.0510	0.998	0.972	90.0000	90.0000
7	0.603	0.603	0.856	0.856	0.856	0.077	0.077	2.0980	0.977	0.979	95.0000	95.0000
PARTIAL POSITION	RECTOR SPD AT EXIT	EXIT REL MACH NO	AXIAL VEL RATIO	EXIT REL MACH NO	TOT PRESS LOSS	LOSS COEFFICIENT	SOLIDITY	FIXED TOT PRESS RATIO	TRAV TOT PRESS RATIO	PERCENT DECOMPOSITION	PERCENT DECOMPOSITION	PERCENT DECOMPOSITION
1	0.486	0.486	1.5230	1.5230	1.5230	0.129	0.129	0.948	0.976	1.0000	1.0000	1.0000
2	0.507	0.507	1.5640	1.5640	1.5640	0.104	0.104	0.977	0.998	10.0000	10.0000	10.0000
3	0.480	0.480	1.6310	1.6310	1.6310	0.101	0.101	0.976	0.995	30.0000	30.0000	30.0000
4	0.413	0.413	1.7420	1.7420	1.7420	0.085	0.085	0.985	0.946	50.0000	50.0000	50.0000
5	0.357	0.357	1.8000	1.8000	1.8000	0.104	0.104	0.993	0.993	70.0000	70.0000	70.0000
6	0.347	0.347	2.0510	2.0510	2.0510	0.104	0.104	0.998	0.972	90.0000	90.0000	90.0000
7	0.337	0.337	2.0980	2.0980	2.0980	0.077	0.077	0.977	0.979	95.0000	95.0000	95.0000

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6786 0.9754 0.9556
 Polytropic Efficiency = 0.7959 0.9541 0.8870
 Percent Design Speed = 99.9
 Cor. Nozzle Weight Flow = 186.8
 LE Check Flow/Noz. Flow = 0.9854
 Assumed LE Flow Coeff. = 0.9550
 TE Check Flow/Noz. Flow = 1.0116
 Assumed TE Flow Coeff. = 0.9550

Discharge Valve Setting = 4.7

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

081770

		ROTOR BLADE ROW - NASA TASK IV										
		BLADE ELEMENT PERFORMANCE RESULTS										
PARTIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ANG VELOCITY	INLET ARS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
PARTIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ANG VELOCITY	EXIT ARS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
PARTIAL POSITION	ROTOR SPD AT INLET	INLET ARS MACH NO	INLET REL MACH NO	AXIAL VFL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	MEAS Y RISE	STAT PRESS RISE	
PARTIAL POSITION	ROTOR SPD AT EXIT	EXIT ARS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	DIFFUSION FACTOR	OVERALL PERFORMANCE SUMMARY					
		PERFORMANCE PARAMETERS					STAGE DATA ROTOR DATA					
		Total Pressure Ratio =					FIXED INST. FIXED INST. TRAV. INST.					
		Adiabatic Efficiency =					1.6207 1.6432 1.5625					
		Polytropic Efficiency =					0.8537 0.8798 0.9331					
		Percent Design Speed =					0.8633 0.8879 0.9377					
		Cor. Nozzle Weight Flow =					100.2 Discharge Valve Setting= 9.0					
		IE Check Flow/Noz.Flow =					1.0434 TE Check Flow/Noz.Flow = 0.9345					
		Assumed IE Flow Coeff. =					0.9850 Assumed TE Flow Coeff. = 0.9500					
1	52.59	50.37	50.60	1.99	50.71	713.03	1539.09	1539.09	707.55	1364.64	1364.64	
2	53.41	50.93	50.61	0.80	50.93	759.66	1534.12	1534.12	756.99	1332.84	1332.84	
3	53.52	50.44	52.56	0.89	54.95	815.66	1440.31	1440.31	815.44	1187.23	1187.23	
4	53.45	50.93	49.71	1.12	54.95	789.54	1340.85	1340.85	787.21	1078.41	1078.41	
5	50.83	51.06	47.11	3.87	53.79	783.71	1244.94	1244.94	772.75	948.66	948.66	
6	50.98	50.47	46.15	4.47	53.79	675.85	1047.10	1047.10	648.29	800.12	800.12	
7	50.60	50.47	46.15	4.47	53.43	644.73	989.16	989.16	614.71	748.47	748.47	
1	58.24	41.40	54.80	3.44	4.35	720.04	1025.05	1025.05	538.90	876.63	876.63	
2	57.80	38.29	54.42	3.08	2.91	712.61	1039.78	1039.78	558.18	876.10	876.10	
3	55.00	40.93	50.69	2.32	3.52	723.80	907.91	907.91	546.13	728.77	728.77	
4	49.47	42.96	43.79	5.88	3.78	684.78	790.26	790.26	511.35	603.27	603.27	
5	41.82	44.85	32.15	9.67	9.01	715.73	680.17	680.17	506.52	453.20	453.20	
6	34.39	48.46	14.29	20.10	16.59	760.41	560.62	560.62	457.76	313.30	313.30	
7	20.64	53.91	8.00	12.64	29.96	790.52	503.47	503.47	461.95	174.01	174.01	
1	176.08	0.652	1.429	0.762	0.145	6.029	0.8496	0.8496	0.8271	0.345	0.345	
2	139.11	0.709	1.431	0.737	0.127	6.025	0.8356	0.8356	0.8473	0.369	0.369	
3	120.60	0.766	1.353	0.670	0.098	6.020	0.8781	0.8781	0.8849	0.478	0.478	
4	107.31	0.749	1.258	0.641	0.070	6.017	0.8807	0.8807	0.8960	0.545	0.545	
5	93.87	0.733	1.151	0.655	0.057	6.011	0.9314	0.9314	0.9357	0.619	0.619	
6	78.15	0.624	0.968	0.706	0.057	6.016	0.9170	0.9170	0.9222	0.704	0.704	
7	74.13	0.597	0.913	0.751	0.059	6.012	0.9496	0.9496	0.9529	0.763	0.763	
1	145.71	0.606	1.352	1.3340	1.197	6.029	0.8496	0.8496	0.8271	0.345	0.345	
2	114.82	0.606	0.984	1.3690	1.127	6.025	0.8356	0.8356	0.8473	0.369	0.369	
3	119.33	0.616	0.773	1.5080	1.098	6.020	0.8781	0.8781	0.8849	0.478	0.478	
4	107.18	0.597	0.678	1.6840	1.070	6.017	0.8807	0.8807	0.8960	0.545	0.545	
5	95.13	0.616	0.586	1.9060	1.041	6.011	0.9314	0.9314	0.9357	0.619	0.619	
6	83.18	0.602	0.482	2.2170	1.057	6.016	0.9170	0.9170	0.9222	0.704	0.704	
7	80.82	0.681	0.474	2.3390	1.059	6.012	0.9496	0.9496	0.9529	0.763	0.763	
1	5.0000	1.717	1.203	1.683	1.197	6.029	0.8496	0.8496	0.8271	0.345	0.345	
2	10.0000	1.704	1.177	1.689	1.127	6.025	0.8356	0.8356	0.8473	0.369	0.369	
3	30.0000	1.705	1.173	1.680	1.183	6.020	0.8781	0.8781	0.8849	0.478	0.478	
4	50.0000	1.647	1.158	1.624	1.167	6.017	0.8807	0.8807	0.8960	0.545	0.545	
5	70.0000	1.617	1.149	1.598	1.152	6.011	0.9314	0.9314	0.9357	0.619	0.619	
6	90.0000	1.551	1.152	1.574	1.151	6.016	0.9170	0.9170	0.9222	0.704	0.704	
7	95.0000	1.658	1.170	1.613	1.154	6.012	0.9496	0.9496	0.9529	0.763	0.763	

TABLE XIII - TASK 1 STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

051770

STATOR BLADE ROW - NASA TASK IV			
BLADE ELEMENT PERFORMANCE RESULTS			
POINT NUMBER	15	READING NUMBER	208 DATE
		R/1728970	
PARTIAL POSITION			
1			
2			
3			
4			
5			
6			
7			
PARTIAL POSITION			
1			
2			
3			
4			
5			
6			
7			
PARTIAL POSITION			
1			
2			
3			
4			
5			
6			
7			

PARTIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG MCHP LN	INCID ANG SUPT SUPR	TURN ANGLE	EXIT ABS VELOCITY	INLET ABS VELOCITY	INLET AX VELOCITY	TANG VEL	INLET REL YAWG VEL
1	41.23	37.171	39.47	1.76	723.82	42.50	531.86	541.06	541.06	476.79	476.79
2	37.171	33.01	39.11	-1.40	723.82	42.50	531.86	572.16	572.16	476.79	476.79
3	33.01	40.51	39.50	-0.03	726.96	37.182	589.76	584.55	584.55	442.31	442.31
4	42.17	46.11	40.86	1.11	738.82	39.24	541.62	551.72	551.72	471.37	471.37
5	46.11	42.22	42.78	4.09	784.08	42.06	513.87	483.27	483.27	541.65	541.65
6	51.44			8.68	783.87	43.32	510.84	482.19	482.19	505.10	505.10
7						51.90	586.84	485.05	485.05	608.52	608.52

PARTIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN TE ANGLE	DEV ANG TE	INCID ANG	TURN ANGLE	EXIT ABS VELOCITY	INLET ABS VELOCITY	EXIT AX VELOCITY	TANG VEL	EXIT REL YAWG VEL
1	1.27	0.19	11.13	9.86	10.49	42.50	531.86	531.42	531.42	511.76	511.76
2	0.19	1.62	10.10	10.49	37.182	42.50	531.86	589.76	589.76	3.96	3.96
3	1.62	1.27	8.87	10.49	39.24	37.182	589.76	594.15	594.15	16.83	16.83
4	0.10	2.89	8.75	10.02	39.24	42.06	541.62	541.29	541.29	11.98	11.98
5	2.89	0.10	10.58	13.57	42.06	43.32	513.87	511.97	511.97	0.90	0.90
6	0.146	0.146	13.35	13.57	43.32	43.32	510.84	504.57	504.57	26.58	26.58
7			13.35	13.90	51.90	51.90	586.84	504.68	504.68	24.02	24.02

PARTIAL POSITION	ROTOR SPD AT INLET	INLET REL MACH NO	ANIAL VEL RATIO	SOLINITY RATIO	INLET COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ABR EFFICIENCY	POLY NOMEN RISE/ RISE	STAT PRESS COEFF
1	0.609	1.5230	0.977	1.5230	0.135	0.044	0.044	0.9627	0.9627	0.234	0.234
2	0.615	1.5440	1.031	1.5440	0.056	0.018	0.023	0.9023	0.9023	0.250	0.250
3	0.643	1.6310	1.016	1.6310	0.045	0.014	0.010	0.7738	0.7738	0.245	0.245
4	0.623	1.7420	0.979	1.7420	0.033	0.010	0.010	0.8174	0.8174	0.338	0.338
5	0.637	1.8800	0.940	1.8800	0.042	0.011	0.011	0.8052	0.8052	0.389	0.389
6	0.605	2.0510	1.054	2.0510	0.081	0.042	0.042	0.9694	0.9694	0.429	0.429
7	0.675	2.0980	1.040	2.0980	0.105	0.025	0.025	0.8378	0.8378	0.336	0.336

PARTIAL POSITION	PERCENT DELROTON	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT TEMP RATIO	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ABR EFFICIENCY	POLY NOMEN RISE/ RISE	STAT PRESS COEFF
1	5.0000	0.992	0.970	1.040	1.040	0.044	0.044	0.9627	0.9627	0.234	0.234
2	10.0000	1.000	0.987	1.060	1.060	0.018	0.023	0.9023	0.9023	0.250	0.250
3	31.0000	0.993	0.989	1.000	1.000	0.014	0.010	0.7738	0.7738	0.245	0.245
4	51.0000	0.978	0.992	1.000	1.000	0.010	0.010	0.8174	0.8174	0.338	0.338
5	70.0000	0.972	0.988	1.000	1.000	0.011	0.011	0.8052	0.8052	0.389	0.389
6	91.0000	0.976	0.987	1.000	1.000	0.042	0.042	0.9694	0.9694	0.429	0.429
7	95.0000	0.937	0.978	1.000	1.000	0.025	0.025	0.8378	0.8378	0.336	0.336

OVERALL PERFORMANCE SUMMARY			
STAGE DATA STATOR DATA STATOR DATA			
FIXED INST.	FIXED INST.	TRAV. INST.	
1.6207	0.9663	0.9749	
0.8633	0.9723		
Total Pressure Ratio =		0.9663	
Polytropic Efficiency =		0.9723	
Percent Design Speed =		100.2	
Cor. Nozzle Weight Flow =		212.4	

IE Check Flow/Noz.Flow =	TE Check Flow/Noz.Flow =
0.9394	0.9219
Assumed IE Flow Coeff. =	Assumed TE Flow Coeff. =
0.9550	0.9390

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 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV													
		BLADE ELEMENT PERFORMANCE RESULTS						ROTOR DATA							
		POINT NUMBER	16	READING NUMBER	209	DATE	8/17/1970								
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ARS YANG VEL	INLET REL YANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS YANG VEL	EXIT REL YANG VEL
1	63.05	-0.24	60.60	27.45	-0.25	697.27	1529.03	694.91	-2.86	1360.79	877.27	1220.43	607.64	284.56	1057.02
2	61.45	0.83	59.61	47.78	2.25	827.43	1518.03	724.87	-4.39	1332.39	836.11	1219.68	624.04	267.99	1046.74
3	54.83	1.32	52.56	51.11	-0.96	877.77	1453.37	836.00	12.10	1186.90	863.53	1207.49	601.85	311.29	885.15
4	47.95	0.25	49.71	57.32	1.49	851.45	1357.60	860.82	19.87	1047.75	851.38	1243.52	595.41	369.19	687.49
5	47.32	0.33	47.11	6.87	6.87	847.14	1081.60	724.94	4.11	782.79	752.18	1081.60	617.87	416.90	538.71
6	47.47	0.31	46.13	13.92	19.11	808.46	1026.31	677.38	3.72	738.54	712.66	712.66	625.00	500.59	335.26
7	20.91	43.92	8.00	121.91	26.56	842.29	654.59	599.57	577.45	229.10					
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS YANG VEL	EXIT REL YANG VEL	LOSS COEFFICIENT	SOLIDITY	FIXED TOT PRESS RATIO	TEMP RATIO	AXIAL VEL RATIO
1	60.11	25.25	54.80	5.73	2.94	874.00	1220.43	607.64	284.56	1057.02	0.141	1.3340	1.117	1.328	0.878
2	58.20	23.24	54.82	4.78	2.25	881.01	1219.68	624.04	267.99	1046.74	0.089	1.3690	1.113	1.365	0.861
3	55.79	27.35	50.66	5.11	-0.96	877.77	1207.49	601.85	311.29	885.15	0.115	1.5080	1.122	1.379	0.720
4	49.11	33.17	43.79	57.32	1.49	851.45	1243.52	595.41	369.19	687.49	0.163	1.6840	1.131	1.383	0.692
5	41.08	34.01	32.15	6.87	6.87	847.14	1081.60	617.87	416.90	538.71	0.095	1.9060	1.121	1.409	0.736
6	28.21	38.49	14.29	13.92	19.11	808.46	712.66	625.00	500.59	335.26	0.118	2.2170	1.136	1.477	0.866
7	20.91	43.92	8.00	121.91	26.56	842.29	654.59	599.57	577.45	229.10	0.133	2.3390	1.138	1.484	0.885
RADIAL POSITION	ROTOR SPD AT INLET	EXIT ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ STAT PRESS EFFICIENCY	MEAS RISE	DIFFUSION FACTOR	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	ROTOR DATA		
1	1357.93	0.647	1.418	0.878	0.141	0.026	0.7202	0.7312	0.168	0.272	1.3413	1.3947	1.4160		
2	1328.01	0.677	1.412	0.861	0.089	0.017	0.6217	0.8293	0.266	0.262	0.7048	0.8031	0.8963		
3	1198.50	0.789	1.369	0.720	0.115	0.021	0.7907	0.8000	0.315	0.331	0.7168	0.8121	0.9013		
4	1067.62	0.818	1.285	0.692	0.163	0.032	0.8388	0.7505	0.401	0.411					
5	934.59	0.805	1.192	0.736	0.095	0.019	0.8537	0.8606	0.479	0.436					
6	786.91	0.702	1.013	0.866	0.118	0.023	0.8678	0.8749	0.516	0.445					
7	742.26	0.663	0.935	0.885	0.133	0.027	0.8648	0.8722	0.529	0.487					
RADIAL POSITION	PERCENT RECOMBINATION	TRAV TOT PRESS RATIO	EXIT ABS MACH NO	INLET REL MACH NO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ STAT PRESS EFFICIENCY	MEAS RISE	DIFFUSION FACTOR	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	ROTOR DATA		
1	5.0000	1.361	1.116	1.328	0.117	0.026	0.7202	0.7312	0.168	0.272	1.3413	1.3947	1.4160		
2	10.0000	1.366	1.107	1.365	0.113	0.017	0.6217	0.8293	0.266	0.262	0.7048	0.8031	0.8963		
3	30.0000	1.384	1.109	1.379	0.122	0.021	0.7907	0.8000	0.315	0.331	0.7168	0.8121	0.9013		
4	50.0000	1.409	1.123	1.383	0.131	0.032	0.8388	0.7505	0.401	0.411					
5	70.0000	1.457	1.113	1.409	0.121	0.019	0.8537	0.8606	0.479	0.436					
6	90.0000	1.488	1.127	1.477	0.136	0.023	0.8678	0.8749	0.516	0.445					
7	95.0000	1.524	1.143	1.484	0.138	0.027	0.8648	0.8722	0.529	0.487					

OVERALL PERFORMANCE SUMMARY

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.
	1.3413	1.3947
	0.7048	0.8031
	0.7168	0.8121
		1.4160
		0.8963
		0.9013
Discharge Valve Setting=	30.0	
Cor. Nozzle Weight Flow=	216.0	

LE Check Flow/Noz.Flow = 1.0436
 Assumed LE Flow Coeff. = 0.9850
 TE Check Flow/Noz.Flow = 0.9480
 Assumed TE Flow Coeff. = 0.9500

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 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW - NASA TASK IV													
		BLADE ELEMENT PERFORMANCE RESULTS													
		POINT NUMBER	16	READING NUMBER	209	DATE	07/17/1970								
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
1		25.10	39.47	-14.37	23.80	877.87	613.83	641.30	287.59	268.96	709.08	5.32	730.39	14.43	
2		22.75	39.11	-16.36	22.49	895.44	648.45	648.45	310.99	310.99	730.39	4.91	730.39	14.43	
3		25.62	39.01	-13.39	22.49	819.59	648.45	648.45	385.32	385.32	730.39	4.91	730.39	14.43	
4		30.71	39.80	-9.69	22.49	856.20	673.38	673.38	408.09	408.09	730.39	4.91	730.39	14.43	
5		31.22	40.86	-9.64	22.49	892.23	667.44	667.44	482.65	482.65	730.39	4.91	730.39	14.43	
6		35.87	42.22	-6.35	22.49	832.55	634.58	634.58	554.40	554.40	730.39	4.91	730.39	14.43	
7		41.14	42.76	-1.62	22.49	851.63	634.58	634.58	554.40	554.40	730.39	4.91	730.39	14.43	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	TURN ANGLE	DIFFUSION FACTOR	POLY MOMEN RISE/ RISE COEFF	STAT PRESS RISE	CH1
1		1.30	-11.13	12.43	23.80	835.83	635.66	635.66	14.43	14.43	14.43	0.194	-1.6905	0.170	-0.188
2		0.27	-10.10	16.37	22.49	809.12	635.66	635.66	14.43	14.43	14.43	0.194	-1.6905	0.170	-0.188
3		-0.38	-8.87	8.49	22.49	730.71	635.66	635.66	14.43	14.43	14.43	0.194	-1.6905	0.170	-0.188
4		1.03	-8.75	9.78	22.49	844.06	635.66	635.66	14.43	14.43	14.43	0.194	-1.6905	0.170	-0.188
5		-2.03	-9.10	7.07	22.49	873.60	635.66	635.66	14.43	14.43	14.43	0.194	-1.6905	0.170	-0.188
6		2.13	-10.58	12.71	22.49	870.40	635.66	635.66	14.43	14.43	14.43	0.194	-1.6905	0.170	-0.188
7		1.61	-12.36	13.97	22.49	829.87	635.66	635.66	14.43	14.43	14.43	0.194	-1.6905	0.170	-0.188
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ RISE COEFF	STAT PRESS RISE	CH1		
1		0.592	0.592	1.036	1.5230	0.233	0.233	0.076	-1.6905	-1.6905	0.170	0.170	-0.188		
2		0.610	0.610	1.106	1.5440	0.149	0.149	0.048	3.5861	3.5861	0.149	0.149	-0.166		
3		0.632	0.632	1.126	1.6310	0.129	0.129	0.039	4.6366	4.6366	0.135	0.135	-0.151		
4		0.642	0.642	1.146	1.7420	0.091	0.091	0.026	-4.6190	-4.6190	0.101	0.101	-0.114		
5		0.700	0.700	1.146	1.8800	0.122	0.122	0.033	-4.0882	-4.0882	0.159	0.159	-0.159		
6		0.735	0.735	1.299	2.0310	0.208	0.208	0.051	2.9660	2.9660	0.240	0.240	-0.285		
7		0.750	0.750	1.303	2.0980	0.265	0.265	0.063	-6.9918	-6.9918	0.270	0.270	-0.270		
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	FIXED TOT TEMP RATIO	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ RISE COEFF	STAT PRESS RISE	CH1		
1		0.592	0.592	1.036	1.000	0.233	0.233	0.076	-1.6905	-1.6905	0.170	0.170	-0.188		
2		0.610	0.610	1.106	1.000	0.149	0.149	0.048	3.5861	3.5861	0.149	0.149	-0.166		
3		0.632	0.632	1.126	1.000	0.129	0.129	0.039	4.6366	4.6366	0.135	0.135	-0.151		
4		0.642	0.642	1.146	1.000	0.091	0.091	0.026	-4.6190	-4.6190	0.101	0.101	-0.114		
5		0.685	0.685	1.146	1.000	0.122	0.122	0.033	-4.0882	-4.0882	0.159	0.159	-0.159		
6		0.774	0.774	1.299	1.000	0.208	0.208	0.051	2.9660	2.9660	0.240	0.240	-0.285		
7		0.733	0.733	1.303	1.000	0.265	0.265	0.063	-6.9918	-6.9918	0.270	0.270	-0.270		
RADIAL POSITION	PERCENT RECOVERY	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	FIXED TOT TEMP RATIO	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ RISE COEFF	STAT PRESS RISE	CH1		
1	5.0000	0.929	0.929	1.000	1.000	0.233	0.233	0.076	-1.6905	-1.6905	0.170	0.170	-0.188		
2	10.0000	0.969	0.969	1.000	1.000	0.149	0.149	0.048	3.5861	3.5861	0.149	0.149	-0.166		
3	30.0000	0.967	0.967	1.000	1.000	0.129	0.129	0.039	4.6366	4.6366	0.135	0.135	-0.151		
4	50.0000	0.956	0.956	1.000	1.000	0.091	0.091	0.026	-4.6190	-4.6190	0.101	0.101	-0.114		
5	70.0000	0.934	0.934	1.000	1.000	0.122	0.122	0.033	-4.0882	-4.0882	0.159	0.159	-0.159		
6	90.0000	0.930	0.930	1.000	1.000	0.208	0.208	0.051	2.9660	2.9660	0.240	0.240	-0.285		
7	95.0000	0.884	0.884	1.000	1.000	0.265	0.265	0.063	-6.9918	-6.9918	0.270	0.270	-0.270		

OVERALL PERFORMANCE SUMMARY

SPACE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.3413 0.9617 0.9478
 0.7168 0.8826
 Discharge Valve Setting = 30.0
 LE Check Flow/Noz.Flow = 0.9530
 Assumed LE Flow Coeff. = 0.9550
 TE Check Flow/Noz.Flow = 0.9560
 Assumed TE Flow Coeff. = 0.9350

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

RADIAL POSITION	ROTOR BLADE RHH - NASA TASK IV											INLET REL TANG VEL	INLET ARS TANG VEL	INLET REL VELOCITY	INLET ARS VELOCITY	INLET AX VELOCITY	INLET ARS VELOCITY	EXIT REL VELOCITY	EXIT ARS VELOCITY	EXIT AX VELOCITY	EXIT ARS VELOCITY	CHI
	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN IE ANGLE	FRCTD ANG MN CHBR LN	INGID ANG SNOT SURF	INLET ARS VELOCITY	INLET REL VELOCITY	REL YURN ANGLE	RFL DEVI ANGLE	RFL YURN ANGLE	EXIT REL VELOCITY											
1	67.78	0.54	60.60	7.18	4.48	587.75	146.44	5.59	3.81	9.16	970.97	304.92	0.468									
2	66.23	-0.19	59.61	6.62	5.22	586.77	145.63	5.59	3.81	13.15	938.24	562.92	0.498									
3	60.68	-0.88	56.81	4.67	6.22	679.98	138.82	6.22	3.09	18.47	887.97	474.76	0.555									
4	59.09	-2.50	52.56	6.53	6.69	659.80	128.63	6.69	3.09	14.82	722.08	454.68	0.600									
5	57.02	-3.09	49.71	7.31	7.31	639.80	121.6	7.31	3.09	10.04	564.37	378.76	0.653									
6	54.31	-2.74	47.41	9.20	7.34	566.09	99.122	9.20	3.09	15.71	495.89	596.13	0.645									
7	56.12	-2.23	46.13	9.99	7.09	539.67	934.66	9.99	3.09	36.81	473.95	669.86	0.658									
1	67.78	0.54	60.60	7.18	4.48	587.75	146.44	5.59	3.81	9.16	970.97	304.92	0.468									
2	66.23	-0.19	59.61	6.62	5.22	586.77	145.63	5.59	3.81	13.15	938.24	562.92	0.498									
3	60.68	-0.88	56.81	4.67	6.22	679.98	138.82	6.22	3.09	18.47	887.97	474.76	0.555									
4	59.09	-2.50	52.56	6.53	6.69	659.80	128.63	6.69	3.09	14.82	722.08	454.68	0.600									
5	57.02	-3.09	49.71	7.31	7.31	639.80	121.6	7.31	3.09	10.04	564.37	378.76	0.653									
6	54.31	-2.74	47.41	9.20	7.34	566.09	99.122	9.20	3.09	15.71	495.89	596.13	0.645									
7	56.12	-2.23	46.13	9.99	7.09	539.67	934.66	9.99	3.09	36.81	473.95	669.86	0.658									
1	1360.03	0.209	1233.07	1.938	0.912	1.3334	0.031	0.252	0.261	0.261	0.7429	0.723	0.341									
2	1330.07	0.339	1203.07	1.834	0.960	1.3334	0.031	0.252	0.261	0.261	0.7429	0.723	0.341									
3	1269.28	0.610	1185	1.185	0.692	1.3334	0.031	0.252	0.261	0.261	0.7429	0.723	0.341									
4	1214.04	0.591	1174	1.074	0.663	1.3334	0.031	0.252	0.261	0.261	0.7429	0.723	0.341									
5	1184.13	0.520	1162	0.910	0.766	1.3334	0.031	0.252	0.261	0.261	0.7429	0.723	0.341									
6	1141.41	0.494	1156	0.856	0.844	1.3334	0.031	0.252	0.261	0.261	0.7429	0.723	0.341									
1	1345.66	0.593	12794	0.794	1.3334	0.031	0.252	0.261	0.261	0.261	0.7429	0.723	0.341									
2	1316.97	0.659	12722	0.772	1.3334	0.031	0.252	0.261	0.261	0.261	0.7429	0.723	0.341									
3	1284.29	0.812	12676	0.767	1.3334	0.031	0.252	0.261	0.261	0.261	0.7429	0.723	0.341									
4	1274.34	0.812	12682	0.881	1.3334	0.031	0.252	0.261	0.261	0.261	0.7429	0.723	0.341									
5	1274.09	0.609	12682	0.481	1.3334	0.031	0.252	0.261	0.261	0.261	0.7429	0.723	0.341									
6	137.15	0.633	12626	0.426	2.2170	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035									
7	107.80	0.697	12608	0.408	2.3360	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044									
1	8.0000	1.840	1.840	1.840	1.840	1.840	1.840	1.840	1.840	1.840	1.840	1.840	1.840									
2	10.0000	1.919	1.875	1.865	1.865	1.865	1.865	1.865	1.865	1.865	1.865	1.865	1.865									
3	33.0000	3.807	1.811	1.780	1.780	1.780	1.780	1.780	1.780	1.780	1.780	1.780	1.780									
4	70.0000	1.747	1.198	1.190	1.190	1.190	1.190	1.190	1.190	1.190	1.190	1.190	1.190									
5	90.0000	1.671	1.181	1.176	1.176	1.176	1.176	1.176	1.176	1.176	1.176	1.176	1.176									
6	90.0000	1.537	1.171	1.163	1.163	1.163	1.163	1.163	1.163	1.163	1.163	1.163	1.163									
7	90.0000	1.740	1.182	1.159	1.159	1.159	1.159	1.159	1.159	1.159	1.159	1.159	1.159									

OVERALL PERFORMANCE SUMMARY
 STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST. TRAV. INST.
 1.6946 1.7476 1.7763
 0.7627 0.8111 0.8265
 0.7796 0.8254 0.8399
 Percent Design Speed = 100.2 Discharge Valve Setting= 4.8
 Cor. Nozzle Weight Flow= 187.8

IE Check Flow/Noz.Flow = 1.0693 TE Check Flow/Noz.Flow = 0.9958
 Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

065970

STATOR BLADE ROW = NACA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 20		READING NUMBER 117		DATE	
				6/22/21976					
PARTIAL POSITION	REL INLET FLOW ANG	ANS INLET FLOW ANG	CHBR LN I'E ANGLE	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET RFL TANG VFL
1	45.57	44.64	39.47	61.6	728.00	810.74	509.62	519.87	569.62
2	44.64	44.64	39.47	51.53	810.74	576.86	576.86	569.62	569.62
3	47.40	47.40	39.47	8.59	747.16	505.57	505.57	569.62	569.62
4	48.73	48.73	39.47	6.23	747.16	566.44	566.44	566.44	566.44
5	51.78	51.78	40.86	10.62	723.38	448.06	448.06	566.44	566.44
6	51.98	51.98	42.82	9.76	734.14	449.37	449.37	574.77	574.77
7	54.15	54.15	42.76	11.39	768.57	464.70	464.70	643.12	643.12
PARTIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN I'E ANGLE	DEW ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT RFL TANG VFL
1	0.46	0.46	11.13	45.14	623.85	570.5	623.85	570.5	570.5
2	7.17	7.17	10.70	37.47	642.75	82.65	82.65	80.85	80.85
3	1.93	1.93	8.87	45.47	574.92	574.92	574.92	-17.34	-17.34
4	-1.30	-1.30	8.75	50.03	496.98	496.98	496.98	-11.34	-11.34
5	-1.95	-1.95	7.15	53.73	446.61	439.61	439.61	-14.95	-14.95
6	7.98	7.98	10.58	48.96	488.54	488.54	488.54	54.57	54.57
7	12.33	12.33	12.56	40.03	385.71	385.71	385.71	-15.54	-15.54
PARTIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHI			
1	0.596	0.596	0.596	1.224	0.375	0.164			
2	0.668	0.668	0.668	1.114	0.396	0.165			
3	0.630	0.630	0.630	1.136	0.448	0.244			
4	0.628	0.628	0.628	1.020	0.546	0.319			
5	0.618	0.618	0.618	0.946	0.612	0.459			
6	0.631	0.631	0.631	0.898	0.612	0.550			
7	0.688	0.688	0.688	0.822	0.712	0.499			
PARTIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY	LOSS COEFFICIENT	POLY MOMEN RISE/RISE	POLY EFFICIENCY	STAY PRESS RISE COEFF	
1	0.510	0.510	0.510	1.520	0.212	0.470	0.4521	0.152	
2	0.532	0.532	0.532	1.540	0.246	0.480	0.4830	0.151	
3	0.478	0.478	0.478	1.630	0.130	0.640	0.6066	0.226	
4	0.416	0.416	0.416	1.740	0.117	0.633	0.6292	0.337	
5	0.349	0.349	0.349	1.800	0.068	0.623	0.7388	0.476	
6	0.343	0.343	0.343	2.050	0.078	0.622	0.7606	0.466	
7	0.321	0.321	0.321	2.090	0.067	0.616	0.5694	0.461	
PARTIAL POSITION	PERCENT THROUGH	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TAY PRESS RATIO	FIXED TAY TEMP RATIO	PERFORMANCE PARAMETERS	STATOR DATA	STATOR DATA	STATOR DATA
1	5.0000	0.978	0.946	0.956	1.068	STATOR DATA	FIXED INST. TRAV. INST.	FIXED INST. TRAV. INST.	FIXED INST. TRAV. INST.
2	10.0000	0.946	0.928	0.949	1.068	Total Pressure Ratio =	1.6946	0.9696	0.9536
3	30.0000	0.947	0.922	0.972	1.068	Polytropic Efficiency =	0.7796	0.9445	0.8504
4	50.0000	0.958	0.940	0.978	1.068	Percent Design Speed =	100.2	Discharge Valve Setting=	4.8
5	70.0000	0.956	0.978	0.978	1.068	Cor. Nozzle Weight Flow =	187.8		
6	90.0000	0.900	0.908	0.908	1.068				
7	95.0000	0.900	0.908	0.908	1.068				

OVERALL PERFORMANCE SUMMARY

STATOR DATA STATOR DATA STATOR DATA
 FIXED INST. TRAV. INST. TRAV. INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6946 0.9696 0.9536
 Polytropic Efficiency = 0.7796 0.9445 0.8504
 Percent Design Speed = 100.2 Discharge Valve Setting=4.8
 Cor. Nozzle Weight Flow = 187.8
 IE Check Flow/Noz.Flow = 1.0010 IE Check Flow/Noz.Flow = 1.0299
 Assumed IE Flow Coeff. = 0.9550 Assumed IE Flow Coeff. = 0.934

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

PARTIAL POSITION	ROTOR BLADE-RON - 2 - NASA TASK IV																		
	BLADE ELEMENT PERFORMANCE RESULTS										DATE								
	POINT NUMBER	21	READING NUMBER	188	DATE	6/24/1970													
REL INLET FLOW ANG	64.06	ABS INLET FLOW ANG	1.31	CHBR LN	60.60	TNCTD ANG	3.46	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	855.16	INLET REL VELOCITY	1494.72	INLET ABS VELOCITY	855.16	INLET REL VELOCITY	1494.72
REL INLET FLOW ANG	61.59	ABS INLET FLOW ANG	1.56	CHBR LN	59.61	TNCTD ANG	4.05	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	709.78	INLET REL VELOCITY	1494.07	INLET ABS VELOCITY	709.78	INLET REL VELOCITY	1494.07
REL INLET FLOW ANG	54.66	ABS INLET FLOW ANG	1.12	CHBR LN	56.01	TNCTD ANG	4.68	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	840.48	INLET REL VELOCITY	1494.05	INLET ABS VELOCITY	840.48	INLET REL VELOCITY	1494.05
REL INLET FLOW ANG	58.43	ABS INLET FLOW ANG	0.38	CHBR LN	52.56	TNCTD ANG	-0.13	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	819.34	INLET REL VELOCITY	1494.22	INLET ABS VELOCITY	819.34	INLET REL VELOCITY	1494.22
REL INLET FLOW ANG	49.60	ABS INLET FLOW ANG	-0.45	CHBR LN	49.71	TNCTD ANG	0.19	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	794.30	INLET REL VELOCITY	1494.39	INLET ABS VELOCITY	794.30	INLET REL VELOCITY	1494.39
REL INLET FLOW ANG	50.12	ABS INLET FLOW ANG	-0.43	CHBR LN	47.11	TNCTD ANG	3.01	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	863.36	INLET REL VELOCITY	105.72	INLET ABS VELOCITY	863.36	INLET REL VELOCITY	105.72
REL INLET FLOW ANG	50.52	ABS INLET FLOW ANG	-1.13	CHBR LN	46.13	TNCTD ANG	4.59	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	823.17	INLET REL VELOCITY	1001.13	INLET ABS VELOCITY	823.17	INLET REL VELOCITY	1001.13
REL EXIT FLOW ANG	59.22	ABS EXIT FLOW ANG	38.02	CHBR LN	54.60	TNCTD ANG	4.42	INCID ANG	8.78	BUDT SUFF	-0.78	EXIT ABS VELOCITY	547.56	EXIT REL VELOCITY	1071.03	EXIT ABS VELOCITY	547.56	EXIT REL VELOCITY	1071.03
REL EXIT FLOW ANG	57.04	ABS EXIT FLOW ANG	39.16	CHBR LN	54.42	TNCTD ANG	2.62	INCID ANG	8.78	BUDT SUFF	-0.78	EXIT ABS VELOCITY	559.37	EXIT REL VELOCITY	1029.12	EXIT ABS VELOCITY	559.37	EXIT REL VELOCITY	1029.12
REL EXIT FLOW ANG	53.43	ABS EXIT FLOW ANG	40.77	CHBR LN	50.68	TNCTD ANG	2.78	INCID ANG	8.78	BUDT SUFF	-0.78	EXIT ABS VELOCITY	523.56	EXIT REL VELOCITY	917.35	EXIT ABS VELOCITY	523.56	EXIT REL VELOCITY	917.35
REL EXIT FLOW ANG	49.53	ABS EXIT FLOW ANG	42.75	CHBR LN	43.79	TNCTD ANG	5.74	INCID ANG	8.78	BUDT SUFF	-0.78	EXIT ABS VELOCITY	544.91	EXIT REL VELOCITY	789.46	EXIT ABS VELOCITY	544.91	EXIT REL VELOCITY	789.46
REL EXIT FLOW ANG	41.94	ABS EXIT FLOW ANG	43.66	CHBR LN	32.15	TNCTD ANG	9.79	INCID ANG	8.78	BUDT SUFF	-0.78	EXIT ABS VELOCITY	493.58	EXIT REL VELOCITY	696.59	EXIT ABS VELOCITY	493.58	EXIT REL VELOCITY	696.59
REL EXIT FLOW ANG	38.69	ABS EXIT FLOW ANG	47.75	CHBR LN	14.29	TNCTD ANG	18.60	INCID ANG	8.78	BUDT SUFF	-0.78	EXIT ABS VELOCITY	479.59	EXIT REL VELOCITY	577.46	EXIT ABS VELOCITY	479.59	EXIT REL VELOCITY	577.46
REL EXIT FLOW ANG	22.99	ABS EXIT FLOW ANG	52.46	CHBR LN	8.00	TNCTD ANG	14.69	INCID ANG	8.78	BUDT SUFF	-0.78	EXIT ABS VELOCITY	468.73	EXIT REL VELOCITY	518.90	EXIT ABS VELOCITY	468.73	EXIT REL VELOCITY	518.90
REL INLET FLOW ANG	1361.60	ABS INLET FLOW ANG	0.611	CHBR LN	1.887	TNCTD ANG	0.836	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.449	INLET REL VELOCITY	0.378	INLET ABS VELOCITY	0.449	INLET REL VELOCITY	0.378
REL INLET FLOW ANG	1331.60	ABS INLET FLOW ANG	0.663	CHBR LN	1.390	TNCTD ANG	0.766	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.406	INLET REL VELOCITY	0.417	INLET ABS VELOCITY	0.406	INLET REL VELOCITY	0.417
REL INLET FLOW ANG	1201.75	ABS INLET FLOW ANG	0.797	CHBR LN	1.377	TNCTD ANG	0.647	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.502	INLET REL VELOCITY	0.514	INLET ABS VELOCITY	0.502	INLET REL VELOCITY	0.514
REL INLET FLOW ANG	1678.51	ABS INLET FLOW ANG	0.776	CHBR LN	1.271	TNCTD ANG	0.628	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.674	INLET REL VELOCITY	0.674	INLET ABS VELOCITY	0.674	INLET REL VELOCITY	0.674
REL INLET FLOW ANG	937.12	ABS INLET FLOW ANG	0.759	CHBR LN	1.169	TNCTD ANG	0.651	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.545	INLET REL VELOCITY	0.545	INLET ABS VELOCITY	0.545	INLET REL VELOCITY	0.545
REL INLET FLOW ANG	789.03	ABS INLET FLOW ANG	0.642	CHBR LN	0.678	TNCTD ANG	0.723	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.686	INLET REL VELOCITY	0.686	INLET ABS VELOCITY	0.686	INLET REL VELOCITY	0.686
REL INLET FLOW ANG	744.26	ABS INLET FLOW ANG	0.607	CHBR LN	0.927	TNCTD ANG	0.752	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.620	INLET REL VELOCITY	0.620	INLET ABS VELOCITY	0.620	INLET REL VELOCITY	0.620
REL INLET FLOW ANG	1347.21	ABS INLET FLOW ANG	0.578	CHBR LN	0.809	TNCTD ANG	1.334	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.493	INLET REL VELOCITY	0.493	INLET ABS VELOCITY	0.493	INLET REL VELOCITY	0.493
REL INLET FLOW ANG	1318.29	ABS INLET FLOW ANG	0.607	CHBR LN	0.864	TNCTD ANG	1.369	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.400	INLET REL VELOCITY	0.400	INLET ABS VELOCITY	0.400	INLET REL VELOCITY	0.400
REL INLET FLOW ANG	1199.67	ABS INLET FLOW ANG	0.609	CHBR LN	0.775	TNCTD ANG	1.508	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.6774	INLET REL VELOCITY	0.6774	INLET ABS VELOCITY	0.6774	INLET REL VELOCITY	0.6774
REL INLET FLOW ANG	1079.59	ABS INLET FLOW ANG	0.599	CHBR LN	0.678	TNCTD ANG	1.684	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.545	INLET REL VELOCITY	0.545	INLET ABS VELOCITY	0.545	INLET REL VELOCITY	0.545
REL INLET FLOW ANG	986.20	ABS INLET FLOW ANG	0.617	CHBR LN	0.600	TNCTD ANG	1.906	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.5334	INLET REL VELOCITY	0.5334	INLET ABS VELOCITY	0.5334	INLET REL VELOCITY	0.5334
REL INLET FLOW ANG	838.14	ABS INLET FLOW ANG	0.619	CHBR LN	0.458	TNCTD ANG	2.270	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.4159	INLET REL VELOCITY	0.4159	INLET ABS VELOCITY	0.4159	INLET REL VELOCITY	0.4159
REL INLET FLOW ANG	808.73	ABS INLET FLOW ANG	0.670	CHBR LN	0.448	TNCTD ANG	2.339	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.4919	INLET REL VELOCITY	0.4919	INLET ABS VELOCITY	0.4919	INLET REL VELOCITY	0.4919
REL INLET FLOW ANG	5.0000	ABS INLET FLOW ANG	1.708	CHBR LN	1.836	TNCTD ANG	1.702	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	1.6296	INLET REL VELOCITY	1.6296	INLET ABS VELOCITY	1.6296	INLET REL VELOCITY	1.6296
REL INLET FLOW ANG	16.0000	ABS INLET FLOW ANG	1.731	CHBR LN	1.616	TNCTD ANG	1.497	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.8319	INLET REL VELOCITY	0.8319	INLET ABS VELOCITY	0.8319	INLET REL VELOCITY	0.8319
REL INLET FLOW ANG	30.0000	ABS INLET FLOW ANG	1.713	CHBR LN	1.186	TNCTD ANG	1.698	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.8430	INLET REL VELOCITY	0.8430	INLET ABS VELOCITY	0.8430	INLET REL VELOCITY	0.8430
REL INLET FLOW ANG	50.0000	ABS INLET FLOW ANG	1.661	CHBR LN	1.190	TNCTD ANG	1.643	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	100.2	INLET REL VELOCITY	100.2	INLET ABS VELOCITY	100.2	INLET REL VELOCITY	100.2
REL INLET FLOW ANG	70.0000	ABS INLET FLOW ANG	1.628	CHBR LN	1.157	TNCTD ANG	1.608	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	214.0	INLET REL VELOCITY	214.0	INLET ABS VELOCITY	214.0	INLET REL VELOCITY	214.0
REL INLET FLOW ANG	90.0000	ABS INLET FLOW ANG	1.598	CHBR LN	1.137	TNCTD ANG	1.584	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	1.0403	INLET REL VELOCITY	1.0403	INLET ABS VELOCITY	1.0403	INLET REL VELOCITY	1.0403
REL INLET FLOW ANG	95.0000	ABS INLET FLOW ANG	1.698	CHBR LN	1.169	TNCTD ANG	1.608	INCID ANG	8.78	BUDT SUFF	-0.78	INLET ABS VELOCITY	0.9850	INLET REL VELOCITY	0.9850	INLET ABS VELOCITY	0.9850	INLET REL VELOCITY	0.9850

OVERALL PERFORMANCE SUMMARY
 STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS =
 Total Pressure Ratio = 1.6561 1.6743
 Adiabatic Efficiency = 0.8319 0.8640
 Polytropic Efficiency = 0.8430 0.8709
 Percent Design Speed = 100.2 Discharge Valve Setting = 9.0
 Cor. Nozzle Weight Flow = 214.0
 LE Check Flow/Noz.Flow = 1.0403 TE Check Flow/Noz.Flow = 0.9390
 Assumed LE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

062570		STATOR BLADE ROW = RASA TASK IV	
PARTIAL POSITION		BLADE ELEMENT PERFORMANCE RESULTS	
POINT NUMBER	21	READING NUMBER	338 DATE
		6/24/1970	
1	REL INLET FLOW ANG	37.85	INLET ABS FLOW ANG
2	REL INLET FLOW ANG	86.58	INLET ABS FLOW ANG
3	REL INLET FLOW ANG	38.74	INLET ABS FLOW ANG
4	REL INLET FLOW ANG	40.30	INLET ABS FLOW ANG
5	REL INLET FLOW ANG	40.96	INLET ABS FLOW ANG
6	REL INLET FLOW ANG	45.16	INLET ABS FLOW ANG
7	REL INLET FLOW ANG	49.95	INLET ABS FLOW ANG
1	REL EXIT FLOW ANG	0.04	EXIT ABS FLOW ANG
2	REL EXIT FLOW ANG	3.15	EXIT ABS FLOW ANG
3	REL EXIT FLOW ANG	3.75	EXIT ABS FLOW ANG
4	REL EXIT FLOW ANG	2.10	EXIT ABS FLOW ANG
5	REL EXIT FLOW ANG	1.01	EXIT ABS FLOW ANG
6	REL EXIT FLOW ANG	4.08	EXIT ABS FLOW ANG
7	REL EXIT FLOW ANG	-0.37	EXIT ABS FLOW ANG
1	ROTOR SPD AT INLET	0.581	INLET ABS MACH NO
2	ROTOR SPD AT INLET	0.616	INLET ABS MACH NO
3	ROTOR SPD AT INLET	0.636	INLET ABS MACH NO
4	ROTOR SPD AT INLET	0.626	INLET ABS MACH NO
5	ROTOR SPD AT INLET	0.639	INLET ABS MACH NO
6	ROTOR SPD AT INLET	0.624	INLET ABS MACH NO
7	ROTOR SPD AT INLET	0.665	INLET ABS MACH NO
1	ROTOR SPD AT EXIT	0.462	EXIT ABS MACH NO
2	ROTOR SPD AT EXIT	0.482	EXIT ABS MACH NO
3	ROTOR SPD AT EXIT	0.509	EXIT ABS MACH NO
4	ROTOR SPD AT EXIT	0.470	EXIT ABS MACH NO
5	ROTOR SPD AT EXIT	0.446	EXIT ABS MACH NO
6	ROTOR SPD AT EXIT	0.440	EXIT ABS MACH NO
7	ROTOR SPD AT EXIT	0.421	EXIT ABS MACH NO
1	PERCENT INJECTION	0.971	TRAY TOT PRESS RATIO
2	PERCENT INJECTION	0.963	TRAY TOT PRESS RATIO
3	PERCENT INJECTION	0.979	TRAY TOT PRESS RATIO
4	PERCENT INJECTION	0.982	TRAY TOT PRESS RATIO
5	PERCENT INJECTION	0.976	TRAY TOT PRESS RATIO
6	PERCENT INJECTION	0.989	TRAY TOT PRESS RATIO
7	PERCENT INJECTION	0.942	TRAY TOT PRESS RATIO
OVERALL PERFORMANCE SUMMARY			
STAGE DATA		STATOR DATA	
FIXED INST. EFFICIENCY		FIXED INST. EFFICIENCY	
1.6296		1.6296	
0.8430		0.8430	
Discharge Valve Setting=9.0		Discharge Valve Setting=9.0	
Total Pressure Ratio =		1.6296	
Polytropic Efficiency =		0.9840	
Percent Design Speed =		100.2	
Cor. Nozzle Weight Flow =		214.0	
LE Check Flow/Noz. Flow =		0.9439	
Assumed LE Flow Coeff. =		0.9550	
TE Check Flow/Noz. Flow =		0.9264	
Assumed TE Flow Coeff. =		0.9357	

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

065970

PARTIAL POSITION		ROTOR BLADE ROW - NASA TASK 17										BLADE ELEMENT PERFORMANCE RESULTS											
POINT NUMBER		22		119		119		119		119		119		119		119		119		119		119	
READING NUMBER		6/24/1970		6/24/1970		6/24/1970		6/24/1970		6/24/1970		6/24/1970		6/24/1970		6/24/1970		6/24/1970		6/24/1970		6/24/1970	
1	1	REL INLET FLOW ANG	61.22	ABS INLET FLOW ANG	-0.03	INLET ANGLE	60.60	CHMBR LN	59.61	INCID ANGLE	2.62	REL ANGLE	57.05	REF DEV ANGLE	54.60	CHMBR LN	59.61	INCID ANGLE	2.62	REL ANGLE	57.05	REF DEV ANGLE	54.60
2	2	REL INLET FLOW ANG	61.25	ABS INLET FLOW ANG	0.41	INLET ANGLE	61.28	CHMBR LN	59.61	INCID ANGLE	3.39	REL ANGLE	57.86	REF DEV ANGLE	54.42	CHMBR LN	59.61	INCID ANGLE	3.39	REL ANGLE	57.86	REF DEV ANGLE	54.42
3	3	REL INLET FLOW ANG	54.17	ABS INLET FLOW ANG	0.73	INLET ANGLE	54.17	CHMBR LN	56.01	INCID ANGLE	1.64	REL ANGLE	52.53	REF DEV ANGLE	50.68	CHMBR LN	56.01	INCID ANGLE	1.64	REL ANGLE	52.53	REF DEV ANGLE	50.68
4	4	REL INLET FLOW ANG	50.12	ABS INLET FLOW ANG	1.22	INLET ANGLE	50.12	CHMBR LN	52.56	INCID ANGLE	2.44	REL ANGLE	47.09	REF DEV ANGLE	43.74	CHMBR LN	52.56	INCID ANGLE	2.44	REL ANGLE	47.09	REF DEV ANGLE	43.74
5	5	REL INLET FLOW ANG	47.26	ABS INLET FLOW ANG	0.74	INLET ANGLE	47.26	CHMBR LN	49.71	INCID ANGLE	2.55	REL ANGLE	44.14	REF DEV ANGLE	40.75	CHMBR LN	49.71	INCID ANGLE	2.55	REL ANGLE	44.14	REF DEV ANGLE	40.75
6	6	REL INLET FLOW ANG	46.84	ABS INLET FLOW ANG	0.72	INLET ANGLE	46.84	CHMBR LN	47.11	INCID ANGLE	2.93	REL ANGLE	41.18	REF DEV ANGLE	38.16	CHMBR LN	47.11	INCID ANGLE	2.93	REL ANGLE	41.18	REF DEV ANGLE	38.16
7	7	REL INLET FLOW ANG	47.71	ABS INLET FLOW ANG	-0.13	INLET ANGLE	47.71	CHMBR LN	46.18	INCID ANGLE	1.58	REL ANGLE	44.63	REF DEV ANGLE	42.28	CHMBR LN	46.18	INCID ANGLE	1.58	REL ANGLE	44.63	REF DEV ANGLE	42.28
1	1	REL EXIT FLOW ANG	59.25	ABS EXIT FLOW ANG	23.94	EXIT ANGLE	23.94	CHMBR LN	54.60	INCID ANGLE	5.05	REL ANGLE	49.15	REF ANGLE	46.60	CHMBR LN	54.60	INCID ANGLE	5.05	REL ANGLE	49.15	REF ANGLE	46.60
2	2	REL EXIT FLOW ANG	59.02	ABS EXIT FLOW ANG	22.99	EXIT ANGLE	22.99	CHMBR LN	54.42	INCID ANGLE	4.60	REL ANGLE	47.55	REF ANGLE	44.58	CHMBR LN	54.42	INCID ANGLE	4.60	REL ANGLE	47.55	REF ANGLE	44.58
3	3	REL EXIT FLOW ANG	55.83	ABS EXIT FLOW ANG	27.86	EXIT ANGLE	27.86	CHMBR LN	50.68	INCID ANGLE	5.15	REL ANGLE	45.50	REF ANGLE	42.58	CHMBR LN	50.68	INCID ANGLE	5.15	REL ANGLE	45.50	REF ANGLE	42.58
4	4	REL EXIT FLOW ANG	48.14	ABS EXIT FLOW ANG	33.74	EXIT ANGLE	33.74	CHMBR LN	43.74	INCID ANGLE	4.58	REL ANGLE	39.16	REF ANGLE	36.10	CHMBR LN	43.74	INCID ANGLE	4.58	REL ANGLE	39.16	REF ANGLE	36.10
5	5	REL EXIT FLOW ANG	40.75	ABS EXIT FLOW ANG	33.05	EXIT ANGLE	33.05	CHMBR LN	32.15	INCID ANGLE	7.11	REL ANGLE	25.04	REF ANGLE	22.08	CHMBR LN	32.15	INCID ANGLE	7.11	REL ANGLE	25.04	REF ANGLE	22.08
6	6	REL EXIT FLOW ANG	27.28	ABS EXIT FLOW ANG	38.46	EXIT ANGLE	38.46	CHMBR LN	14.29	INCID ANGLE	12.59	REL ANGLE	10.70	REF ANGLE	7.72	CHMBR LN	14.29	INCID ANGLE	12.59	REL ANGLE	10.70	REF ANGLE	7.72
7	7	REL EXIT FLOW ANG	26.42	ABS EXIT FLOW ANG	42.28	EXIT ANGLE	42.28	CHMBR LN	8.00	INCID ANGLE	12.42	REL ANGLE	6.58	REF ANGLE	3.60	CHMBR LN	8.00	INCID ANGLE	12.42	REL ANGLE	6.58	REF ANGLE	3.60
1	1	ROTOR SPD AT INLET	1859.03	INLET MACH NO	0.642	AXIAL VEL	1859.03	INLET MACH NO	0.642	AXIAL VEL	1859.03	INLET MACH NO	0.642	AXIAL VEL	1859.03	INLET MACH NO	0.642	AXIAL VEL	1859.03	INLET MACH NO	0.642	AXIAL VEL	1859.03
2	2	ROTOR SPD AT INLET	1829.78	INLET MACH NO	0.680	AXIAL VEL	1829.78	INLET MACH NO	0.680	AXIAL VEL	1829.78	INLET MACH NO	0.680	AXIAL VEL	1829.78	INLET MACH NO	0.680	AXIAL VEL	1829.78	INLET MACH NO	0.680	AXIAL VEL	1829.78
3	3	ROTOR SPD AT INLET	1199.47	INLET MACH NO	0.816	AXIAL VEL	1199.47	INLET MACH NO	0.816	AXIAL VEL	1199.47	INLET MACH NO	0.816	AXIAL VEL	1199.47	INLET MACH NO	0.816	AXIAL VEL	1199.47	INLET MACH NO	0.816	AXIAL VEL	1199.47
4	4	ROTOR SPD AT INLET	1668.49	INLET MACH NO	0.839	AXIAL VEL	1668.49	INLET MACH NO	0.839	AXIAL VEL	1668.49	INLET MACH NO	0.839	AXIAL VEL	1668.49	INLET MACH NO	0.839	AXIAL VEL	1668.49	INLET MACH NO	0.839	AXIAL VEL	1668.49
5	5	ROTOR SPD AT INLET	935.35	INLET MACH NO	0.821	AXIAL VEL	935.35	INLET MACH NO	0.821	AXIAL VEL	935.35	INLET MACH NO	0.821	AXIAL VEL	935.35	INLET MACH NO	0.821	AXIAL VEL	935.35	INLET MACH NO	0.821	AXIAL VEL	935.35
6	6	ROTOR SPD AT INLET	767.54	INLET MACH NO	0.713	AXIAL VEL	767.54	INLET MACH NO	0.713	AXIAL VEL	767.54	INLET MACH NO	0.713	AXIAL VEL	767.54	INLET MACH NO	0.713	AXIAL VEL	767.54	INLET MACH NO	0.713	AXIAL VEL	767.54
7	7	ROTOR SPD AT INLET	748.86	INLET MACH NO	0.664	AXIAL VEL	748.86	INLET MACH NO	0.664	AXIAL VEL	748.86	INLET MACH NO	0.664	AXIAL VEL	748.86	INLET MACH NO	0.664	AXIAL VEL	748.86	INLET MACH NO	0.664	AXIAL VEL	748.86
1	1	ROTOR SPD AT EXIT	1344.67	EXIT MACH NO	0.590	AXIAL VEL	1344.67	EXIT MACH NO	0.590	AXIAL VEL	1344.67	EXIT MACH NO	0.590	AXIAL VEL	1344.67	EXIT MACH NO	0.590	AXIAL VEL	1344.67	EXIT MACH NO	0.590	AXIAL VEL	1344.67
2	2	ROTOR SPD AT EXIT	1115.80	EXIT MACH NO	0.600	AXIAL VEL	1115.80	EXIT MACH NO	0.600	AXIAL VEL	1115.80	EXIT MACH NO	0.600	AXIAL VEL	1115.80	EXIT MACH NO	0.600	AXIAL VEL	1115.80	EXIT MACH NO	0.600	AXIAL VEL	1115.80
3	3	ROTOR SPD AT EXIT	1197.40	EXIT MACH NO	0.590	AXIAL VEL	1197.40	EXIT MACH NO	0.590	AXIAL VEL	1197.40	EXIT MACH NO	0.590	AXIAL VEL	1197.40	EXIT MACH NO	0.590	AXIAL VEL	1197.40	EXIT MACH NO	0.590	AXIAL VEL	1197.40
4	4	ROTOR SPD AT EXIT	1077.95	EXIT MACH NO	0.628	AXIAL VEL	1077.95	EXIT MACH NO	0.628	AXIAL VEL	1077.95	EXIT MACH NO	0.628	AXIAL VEL	1077.95	EXIT MACH NO	0.628	AXIAL VEL	1077.95	EXIT MACH NO	0.628	AXIAL VEL	1077.95
5	5	ROTOR SPD AT EXIT	956.29	EXIT MACH NO	0.668	AXIAL VEL	956.29	EXIT MACH NO	0.668	AXIAL VEL	956.29	EXIT MACH NO	0.668	AXIAL VEL	956.29	EXIT MACH NO	0.668	AXIAL VEL	956.29	EXIT MACH NO	0.668	AXIAL VEL	956.29
6	6	ROTOR SPD AT EXIT	836.53	EXIT MACH NO	0.725	AXIAL VEL	836.53	EXIT MACH NO	0.725	AXIAL VEL	836.53	EXIT MACH NO	0.725	AXIAL VEL	836.53	EXIT MACH NO	0.725	AXIAL VEL	836.53	EXIT MACH NO	0.725	AXIAL VEL	836.53
7	7	ROTOR SPD AT EXIT	887.20	EXIT MACH NO	0.759	AXIAL VEL	887.20	EXIT MACH NO	0.759	AXIAL VEL	887.20	EXIT MACH NO	0.759	AXIAL VEL	887.20	EXIT MACH NO	0.759	AXIAL VEL	887.20	EXIT MACH NO	0.759	AXIAL VEL	887.20
1	1	PERCENT TEMPERATURE	8.0000	PERCENT PRESS RATIO	1.368	TRAV TOY PRESS RATIO	1.139	FIXED TOY PRESS RATIO	1.315	FIXED TOY TEMP RATIO	1.228	LOSS COEFFICIENT	0.194	TOY PRESS LOSS	0.037	PERCENT EFFICIENCY	0.6371	ADB EFFICIENCY	0.6371	PERCENT EFFICIENCY	0.6371	ADB EFFICIENCY	0.6371
2	2	PERCENT TEMPERATURE	8.0000	PERCENT PRESS RATIO	1.378	TRAV TOY PRESS RATIO	1.117	FIXED TOY PRESS RATIO	1.364	FIXED TOY TEMP RATIO	1.128	LOSS COEFFICIENT	0.174	TOY PRESS LOSS	0.028	PERCENT EFFICIENCY	0.7627	ADB EFFICIENCY	0.7627	PERCENT EFFICIENCY	0.7627	ADB EFFICIENCY	0.7627
3	3	PERCENT TEMPERATURE	90.0000	PERCENT PRESS RATIO	1.366	TRAV TOY PRESS RATIO	1.122	FIXED TOY PRESS RATIO	1.411	FIXED TOY TEMP RATIO	1.128	LOSS COEFFICIENT	0.110	TOY PRESS LOSS	0.020	PERCENT EFFICIENCY	0.8063	ADB EFFICIENCY	0.8063	PERCENT EFFICIENCY	0.8063	ADB EFFICIENCY	0.8063
4	4	PERCENT TEMPERATURE	90.0000	PERCENT PRESS RATIO	1.428	TRAV TOY PRESS RATIO	1.140	FIXED TOY PRESS RATIO	1.434	FIXED TOY TEMP RATIO	1.136	LOSS COEFFICIENT	0.126	TOY PRESS LOSS	0.025	PERCENT EFFICIENCY	0.8036	ADB EFFICIENCY	0.8036	PERCENT EFFICIENCY	0.8036	ADB EFFICIENCY	0.8036
5	5	PERCENT TEMPERATURE	70.0000	PERCENT PRESS RATIO	1.480	TRAV TOY PRESS RATIO	1.130	FIXED TOY PRESS RATIO	1.437	FIXED TOY TEMP RATIO	1.127	LOSS COEFFICIENT	0.093	TOY PRESS LOSS	0.019	PERCENT EFFICIENCY	0.8507	ADB EFFICIENCY	0.8507	PERCENT EFFICIENCY	0.8507	ADB EFFICIENCY	0.8507
6	6	PERCENT TEMPERATURE	90.0000	PERCENT PRESS RATIO	1.517	TRAV TOY PRESS RATIO	1.146	FIXED TOY PRESS RATIO	1.446	FIXED TOY TEMP RATIO	1.139	LOSS COEFFICIENT	0.125	TOY PRESS LOSS	0.025	PERCENT EFFICIENCY	0.8815	ADB EFFICIENCY	0.8815	PERCENT EFFICIENCY	0.8815	ADB EFFICIENCY	0.8815
7	7	PERCENT TEMPERATURE	90.0000	PERCENT PRESS RATIO	1.570	TRAV TOY PRESS RATIO	1.149	FIXED TOY PRESS RATIO	1.491	FIXED TOY TEMP RATIO	1.142	LOSS COEFFICIENT	0.140	TOY PRESS LOSS	0.028	PERCENT EFFICIENCY	0.8594	ADB EFFICIENCY	0.8594	PERCENT EFFICIENCY	0.8594	ADB EFFICIENCY	0.8594
OVERALL PERFORMANCE SUMMARY																							
STAGE DATA											ROTOR DATA												
FIXED INST. FIXED INST. TRAV. INST.											FIXED INST. FIXED INST. TRAV. INST.												
Total Pressure Ratio = 1.3944											Total Pressure Ratio = 1.4190												
Adiabatic Efficiency = 0.6941											Adiabatic Efficiency = 0.8063												
Polytropic Efficiency = 0.7070											Polytropic Efficiency = 0.8156												
Percent Design Speed = 100.1											Percent Design Speed = 100.1												
Cor. Nozzle Weight Flow = 219.6											Cor. Nozzle Weight Flow = 219.6												
Discharge Valve Setting = 30.0											Discharge Valve Setting = 30.0												
LE Check Flow/Noz.Flow = 1.0341											LE Check Flow/Noz.Flow = 0.9442												
Assumed LE Flow Coeff. = 0.9850											Assumed LE Flow Coeff. = 0.9500												

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV		STATOR BLADE ROW - NASA TASK IV		STATOR BLADE ROW - NASA TASK IV		STATOR BLADE ROW - NASA TASK IV		STATOR BLADE ROW - NASA TASK IV		STATOR BLADE ROW - NASA TASK IV		STATOR BLADE ROW - NASA TASK IV		STATOR BLADE ROW - NASA TASK IV	
POINT NUMBER	22	READING NUMBER	119	DATE	6/24/89	770									
RACIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CRBL LN IE ANGLE	INCID ANG	INGID ANG	SURT SURP	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS FANG VEL	INLET REL FANG VEL	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS FANG VEL
1	23.80	23.80	39.47	-15.67	885.72		627.42	627.42	627.42	276.167	276.167	627.42	627.42	627.42	276.167
2	22.51	22.51	35.11	-16.60	700.55		647.17	647.17	647.17	268.15	268.15	647.17	647.17	647.17	268.15
3	26.12	26.12	35.01	-12.69	717.92		655.58	655.58	655.58	313.91	313.91	655.58	655.58	655.58	313.91
4	31.25	31.25	39.80	-8.45	768.84		850.74	850.74	850.74	363.70	363.70	850.74	850.74	850.74	363.70
5	30.82	30.82	40.86	-10.04	809.34		882.97	882.97	882.97	432.14	432.14	882.97	882.97	882.97	432.14
6	35.61	35.61	42.22	-6.61	849.14		868.140	868.140	868.140	489.07	489.07	868.140	868.140	868.140	489.07
7	39.44	39.44	42.76	-3.32	875.20					549.85	549.85				549.85
RACIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS FANG VEL	EXIT REL FANG VEL	EXIT AX VELOCITY	EXIT ABS FANG VEL	EXIT REL FANG VEL	EXIT AX VELOCITY	EXIT ABS FANG VEL
1	1.32	1.32	-11.13	12.45	22.47	637.10	637.10	637.10	1.172	1.172	637.10	1.172	1.172	637.10	1.172
2	2.46	2.46	-10.10	12.56	20.05	743.02	743.02	743.02	3.655	3.655	743.02	3.655	3.655	743.02	3.655
3	0.37	0.37	-8.87	9.24	25.75	749.81	749.81	749.81	1.83	1.83	749.81	1.83	1.83	749.81	1.83
4	1.17	1.17	-8.75	9.62	30.08	771.84	771.84	771.84	1.72	1.72	771.84	1.72	1.72	771.84	1.72
5	-1.41	-1.41	-9.10	7.69	32.24	794.55	794.55	794.55	1.55	1.55	794.55	1.55	1.55	794.55	1.55
6	2.21	2.21	-10.58	12.79	33.40	875.54	875.54	875.54	3.64	3.64	875.54	3.64	3.64	875.54	3.64
7	3.05	3.05	-12.36	15.41	34.29	852.37	852.37	852.37	4.23	4.23	852.37	4.23	4.23	852.37	4.23
RACIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL	DIFFUSION FACTOR	CHI	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	AXIAL VEL	DIFFUSION FACTOR	CHI	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO
1	0.594	0.594	0.594	1.5230	1.7101		0.554	0.554	0.554	1.5230	1.7101		0.594	0.594	0.594
2	0.614	0.614	0.614	1.5440	1.7101		0.629	0.629	0.629	1.5440	1.7101		0.614	0.614	0.614
3	0.629	0.629	0.629	1.6310	1.7101		0.671	0.671	0.671	1.6310	1.7101		0.629	0.629	0.629
4	0.671	0.671	0.671	1.7420	1.7101		0.714	0.714	0.714	1.7420	1.7101		0.671	0.671	0.671
5	0.714	0.714	0.714	1.8800	1.7101		0.750	0.750	0.750	1.8800	1.7101		0.714	0.714	0.714
6	0.750	0.750	0.750	2.0510	1.7101		0.778	0.778	0.778	2.0510	1.7101		0.750	0.750	0.750
7	0.778	0.778	0.778	2.0980	1.7101		0.772	0.772	0.772	2.0980	1.7101		0.778	0.778	0.778
RACIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	LOSS COEFFICIENT	LOSS RATIO	FIXED TOY TEMP RATIO	TRAV TOY TEMP RATIO	FIXED TOY PRESS RATIO	TRAV TOY PRESS RATIO	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO
1	0.230	0.230	0.230	1.000	1.000	0.990	0.985	1.000	0.985	5.0000	5.0000	5.0000	0.594	0.594	0.594
2	0.169	0.169	0.169	1.006	1.006	0.962	0.999	1.006	0.961	10.0000	10.0000	10.0000	0.614	0.614	0.614
3	0.179	0.179	0.179	1.000	1.000	0.959	0.999	1.000	0.978	30.0000	30.0000	30.0000	0.629	0.629	0.629
4	0.154	0.154	0.154	1.000	1.000	0.960	0.991	1.000	0.966	50.0000	50.0000	50.0000	0.671	0.671	0.671
5	0.136	0.136	0.136	1.000	1.000	0.961	0.992	1.000	0.932	70.0000	70.0000	70.0000	0.714	0.714	0.714
6	0.209	0.209	0.209	1.006	1.006	0.934	0.995	1.006	0.918	90.0000	90.0000	90.0000	0.750	0.750	0.750
7	0.247	0.247	0.247	1.006	1.006	0.916	0.989	1.006	0.872	98.0000	98.0000	98.0000	0.778	0.778	0.778
STAGE DATA	FIXED INST. PRESS	FIXED INST. TRAV. INST.	POLY TROPIC EFFICIENCY	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION	PERCENT IRRADIATION
1	1.3544	0.9545	0.9545	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000
2	0.7070	0.8658	0.8658	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
3	100.1	219.6	219.6	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000
4	0.9492	0.9550	0.9550	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000
5	0.9492	0.9550	0.9550	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000
6	0.9492	0.9550	0.9550	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000
7	0.9492	0.9550	0.9550	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000	98.0000

OVERALL PERFORMANCE SUMMARY
 STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. PRESS 1.3544 0.9545 0.9545
 FIXED INST. TRAV. INST. 0.7070 0.8658 0.8658
 Total Pressure Ratio = 1.3544 0.9545 0.9545
 Polyropic Efficiency = 0.7070 0.8658 0.8658
 Percent Design Speed = 100.1 Discharge Valve Setting= 30.0
 Cor. Nozzle Weight Flow = 219.6
 IE Check Flow/Noz.Flow = 0.9492 TE Check Flow/Noz.Flow = 0.9549
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350

071670

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV					BLADE ELEMENT PERFORMANCE RESULTS									
					POINT NUMBER	READING NUMBER	DATE							
					8	169	6/26/1970							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN ANGLE	INCID ANG SURF ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY
1	67.72	0.42	60.60	7.12	4.42	559.53	1465.90	555.23	559.53	1465.90	555.23	559.53	1465.90	555.23
2	66.41	-0.22	59.61	6.80	3.77	583.46	1453.58	581.41	583.46	1453.58	581.41	583.46	1453.58	581.41
3	61.55	-1.53	56.01	5.14	0.68	671.02	1389.96	670.77	671.02	1389.96	670.77	671.02	1389.96	670.77
4	59.57	-3.11	52.56	7.01	1.17	651.05	1280.96	648.22	651.05	1280.96	648.22	651.05	1280.96	648.22
5	57.45	-3.07	49.71	7.74	0.95	627.82	1153.75	618.25	627.82	1153.75	618.25	627.82	1153.75	618.25
6	57.24	-3.10	47.11	10.13	2.47	547.79	882.38	525.07	547.79	882.38	525.07	547.79	882.38	525.07
7	56.41	-2.35	46.13	10.28	2.38	533.98	931.61	507.17	533.98	931.61	507.17	533.98	931.61	507.17
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	RBL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY
1	56.80	46.62	54.80	2.00	10.92	758.43	950.61	519.94	758.43	950.61	519.94	758.43	950.61	519.94
2	53.18	45.27	54.42	-1.24	13.23	798.19	937.27	561.06	798.19	937.27	561.06	798.19	937.27	561.06
3	53.69	49.41	50.68	3.01	7.46	728.15	800.82	473.73	728.15	800.82	473.73	728.15	800.82	473.73
4	48.48	51.93	43.79	4.69	11.09	726.26	675.69	447.83	726.26	675.69	447.83	726.26	675.69	447.83
5	41.58	55.75	32.15	9.43	15.87	722.08	543.71	405.92	722.08	543.71	405.92	722.08	543.71	405.92
6	28.78	54.20	14.29	14.49	28.46	742.73	499.04	432.16	742.73	499.04	432.16	742.73	499.04	432.16
7	16.47	55.99	8.90	9.47	39.95	817.68	483.45	454.13	817.68	483.45	454.13	817.68	483.45	454.13
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PARAM	ADB EFFICIENCY	POLY MOMEN EFFICIENCY	ROTOR DATA	ROTOR DATA	ROTOR DATA	STAGE DATA	ROTOR DATA	
1	1359.02	0.511	1.338	0.936	0.265	0.054	0.7399	0.7616	FIXED INST.	FIXED INST.	FIXED INST.	STAGE DATA	ROTOR DATA	
2	1329.08	0.534	1.338	0.969	0.240	0.053	0.7612	0.7809	1.6874	1.7398	1.7703	1.6874	1.7398	
3	1199.47	0.620	1.284	0.706	0.162	0.032	0.8280	0.8413	0.7590	0.8069	0.7928	0.7590	0.8069	
4	1068.48	0.599	1.179	0.691	0.173	0.034	0.8208	0.8334	0.7760	0.8214	0.8087	0.7760	0.8214	
5	935.14	0.577	1.061	0.657	0.149	0.029	0.8542	0.8639	Discharge Valve Setting=	4.5				
6	787.54	0.501	0.898	0.823	0.170	0.034	0.8641	0.8728	Cor. Nozzle Weight Flow=	185.2				
7	742.85	0.488	0.851	0.895	0.203	0.042	0.8532	0.8627						
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	FIXED TOT TEMP RATIO	FIXED TOT PRESS RATIO	PERFORMANCE PARAMETERS	OVERALL PERFORMANCE SUMMARY						
1	1344.66	0.618	1.338	1.3340	1.264	1.264	Total Pressure Ratio =	1.0697 TE Check Flow/Noz.Flow = 0.9914						
2	1315.79	0.638	1.272	1.3690	1.254	1.254	Adiabatic Efficiency =	0.9850 Assumed TE Flow Coeff. = 0.9500						
3	1197.40	0.609	1.199	1.5080	1.214	1.214	Polytropic Efficiency =							
4	1077.54	0.610	1.067	1.6840	1.171	1.171	Percent Design Speed =	100.1						
5	956.58	0.611	0.960	1.9060	1.682	1.682	Cor. Nozzle Weight Flow =	185.2						
6	836.53	0.633	0.426	2.2170	1.598	1.598								
7	807.20	0.609	0.413	2.3390	1.604	1.604								
RADIAL POSITION	PERCENT DEGRASSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERCENT DEGRASSION								
1	5.0000	1.866	1.288	1.867	1.264	5.0000								
2	10.0000	1.909	1.270	1.857	1.254	10.0000								
3	30.0000	1.793	1.218	1.771	1.214	30.0000								
4	50.0000	1.735	1.206	1.682	1.195	50.0000								
5	90.0000	1.666	1.190	1.627	1.175	90.0000								
6	90.0000	1.634	1.183	1.598	1.166	90.0000								
7	95.0000	1.725	1.200	1.604	1.170	95.0000								

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 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

POINT NUMBER		8		BLADE ELEMENT PERFORMANCE RESULTS		DATE		6/26/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG MNCR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL		
1		46.46	39.47	6.99		761.80	524.81	574.92	532.19			
2		44.67	39.11	5.56		808.49	574.92	504.36	568.41			
3		47.60	39.01	8.59		748.19	504.36	480.77	552.30			
4		49.65	39.80	9.85		743.58	480.77	433.53	565.98			
5		53.39	40.86	12.53		729.20	433.53	453.19	583.62			
6		51.76	42.22	9.54		740.09	453.19	476.76	577.66			
7		53.58	42.76	10.82		808.30	476.76		646.12			
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL		
1		0.66	11.13	11.79	45.79	631.90	631.85	645.25	7.30			
2		4.13	10.10	14.23	40.54	646.97	645.25	569.53	46.64			
3		0.54	8.67	9.41	47.06	569.79	569.53	478.14	5.32			
4		-2.45	-6.75	6.30	52.10	479.11	478.14	430.60	-20.44			
5		-1.62	-9.10	7.48	55.01	431.69	430.60	397.81	-12.17			
6		7.28	10.58	17.86	44.48	402.26	397.81	50.80	50.80			
7		0.43	12.36	12.79	53.15	382.39	381.15		2.84			
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	INLET ABS MACH NO	EXIT ABS MACH NO	EXIT REL MACH NO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADP EFFICIENCY	POLY MOMEN RISE/ HEAD T RISE	STAT PRESS RISE COEFF
1		0.621	1.234	1.5230	0.199	0.162	0.191	0.5701	0.5701	0.9579	0.191	0.191
2		0.667	1.122	1.5440	0.132	0.143	0.165	0.5324	0.5324	0.937	0.165	0.165
3		0.625	1.129	1.6310	0.138	0.142	0.237	0.6252	0.6252	0.937	0.237	0.237
4		0.617	0.995	1.7420	0.116	0.133	0.331	0.6205	0.6205	0.931	0.331	0.331
5		0.631	0.874	1.8800	0.090	0.124	0.441	0.7306	0.7306	0.931	0.441	0.441
6		0.690	0.799	2.0510	0.091	0.122	0.501	0.7589	0.7589	0.931	0.501	0.501
7				2.0980	0.065	0.115	0.5965	0.5965				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG MNCR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL		
1		5.0000	0.970	0.957	1.000	1.000	1.000	1.000	1.000	1.000		
2		30.0000	0.975	0.968	1.000	1.000	1.000	1.000	1.000	1.000		
3		30.0000	0.985	0.972	1.000	1.000	1.000	1.000	1.000	1.000		
4		50.0000	0.975	0.979	1.000	1.000	1.000	1.000	1.000	1.000		
5		70.0000	0.978	0.978	1.000	1.000	1.000	1.000	1.000	1.000		
6		90.0000	0.978	0.978	1.000	1.000	1.000	1.000	1.000	1.000		
7		95.0000	0.969	0.961	1.000	1.000	1.000	1.000	1.000	1.000		

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.6874 0.9699 0.9529
 Polytropic Efficiency = 0.7760 0.9447
 Percent Design Speed = 100.1
 Cor. Nozzle Weight Flow = 185.2
 Discharge Valve Setting = 4.5

IE Check Flow/Noz.Flow = 0.9966 TE Check Flow/Noz.Flow = 1.0311
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350

TABLE XIII - TASK 1 STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS										OVERALL PERFORMANCE SUMMARY															
		POINT NUMBER					READING NUMBER					DATE					SPACE DATA					ROTOR DATA					
		9					170					6/26/1970					FIXED INST.					TRAV. INST.					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN	INCID ANG LN	SUCTY SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	DIFFUSION FACTOR	POLY HOMOEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF		
1	63.87	0.64	3.27	0.57	666.64	1804.31	661.49	722.62	7.41	1368.55	1320.49	661.49	7.41	1368.55	1320.49	661.49	7.41	1368.55	1320.49	661.49	7.41	1368.55	0.393	0.350	0.373		
2	61.31	0.44	1.70	-1.33	729.18	1506.50	722.62	7.41	5.60	1320.49	1280.49	722.62	7.41	1320.49	1280.49	722.62	7.41	1320.49	1280.49	722.62	7.41	1320.49	0.425	0.408	0.407		
3	54.79	0.75	-1.22	-5.68	836.87	1451.30	828.13	7.49	5.60	1320.49	1280.49	828.13	7.49	1320.49	1280.49	828.13	7.49	1320.49	1280.49	828.13	7.49	1320.49	0.475	0.475	0.487		
4	51.96	0.52	-0.60	-6.44	830.55	1345.50	828.13	7.49	5.60	1320.49	1280.49	828.13	7.49	1320.49	1280.49	828.13	7.49	1320.49	1280.49	828.13	7.49	1320.49	0.512	0.512	0.570		
5	49.40	-0.28	-0.31	-7.10	814.63	1241.70	803.33	-3.89	5.60	1320.49	1280.49	803.33	-3.89	1320.49	1280.49	803.33	-3.89	1320.49	1280.49	803.33	-3.89	1320.49	0.537	0.537	0.640		
6	50.39	-0.92	3.28	-4.38	686.76	1051.54	659.08	-10.61	5.60	1320.49	1280.49	659.08	-10.61	1320.49	1280.49	659.08	-10.61	1320.49	1280.49	659.08	-10.61	1320.49	0.357	0.357	0.706		
7	50.12	-1.18	3.99	-3.91	663.03	1004.11	630.10	-12.99	5.60	1320.49	1280.49	630.10	-12.99	1320.49	1280.49	630.10	-12.99	1320.49	1280.49	630.10	-12.99	1320.49	0.611	0.611	0.781		
1	59.32	37.95	4.52	4.55	691.82	1067.67	544.22	544.22	424.37	917.27	860.87	544.22	424.37	917.27	860.87	544.22	424.37	917.27	860.87	544.22	424.37	917.27	0.464	0.464	0.488		
2	56.92	38.87	2.90	4.39	721.57	1028.34	560.67	560.67	451.96	860.87	800.87	560.67	451.96	860.87	800.87	560.67	451.96	860.87	800.87	560.67	451.96	860.87	0.425	0.425	0.585		
3	53.15	40.40	2.47	1.64	717.99	911.73	465.21	465.21	465.21	729.50	607.86	465.21	465.21	729.50	607.86	465.21	465.21	729.50	607.86	465.21	465.21	729.50	0.475	0.475	0.638		
4	49.95	42.47	6.16	2.01	692.46	793.86	510.72	510.72	487.46	607.86	472.79	510.72	487.46	607.86	472.79	510.72	487.46	607.86	472.79	510.72	487.46	607.86	0.537	0.537	0.677		
5	42.37	42.88	10.22	7.03	708.78	702.93	481.44	481.44	481.44	472.79	316.53	481.44	481.44	472.79	316.53	481.44	481.44	472.79	316.53	481.44	481.44	472.79	0.357	0.357	0.676		
6	32.99	45.73	18.00	17.40	716.81	587.84	487.67	487.67	518.12	316.53	199.68	487.67	518.12	316.53	199.68	487.67	518.12	316.53	199.68	487.67	518.12	316.53	0.611	0.611	0.686		
7	22.64	51.67	8.00	27.49	778.92	528.89	478.86	478.86	605.70	199.68	199.68	478.86	605.70	199.68	199.68	478.86	605.70	199.68	199.68	478.86	605.70	199.68	0.611	0.611	0.686		
1	1341.64	0.574	1.3340	0.180	0.034	0.7832	0.7987	0.7987	0.350	0.350	0.350	0.7987	0.350	0.350	0.350	0.350	0.7987	0.350	0.350	0.350	0.350	0.350	0.350	0.350	0.350		
2	1312.84	0.604	1.3690	0.165	0.033	0.7963	0.8108	0.8108	0.373	0.373	0.373	0.8108	0.373	0.373	0.373	0.373	0.8108	0.373	0.373	0.373	0.373	0.373	0.373	0.373	0.373		
3	1194.71	0.610	1.5080	0.094	0.019	0.8812	0.8896	0.8896	0.407	0.407	0.407	0.8896	0.407	0.407	0.407	0.407	0.8896	0.407	0.407	0.407	0.407	0.407	0.407	0.407	0.407		
4	1075.12	0.592	1.6840	0.089	0.017	0.8887	0.8961	0.8961	0.487	0.487	0.487	0.8961	0.487	0.487	0.487	0.487	0.8961	0.487	0.487	0.487	0.487	0.487	0.487	0.487	0.487		
5	954.23	0.610	1.9060	0.057	0.011	0.9307	0.9351	0.9351	0.570	0.570	0.570	0.9351	0.570	0.570	0.570	0.570	0.9351	0.570	0.570	0.570	0.570	0.570	0.570	0.570	0.570		
6	834.65	0.613	2.2170	0.094	0.018	0.9102	0.9158	0.9158	0.640	0.640	0.640	0.9158	0.640	0.640	0.640	0.640	0.9158	0.640	0.640	0.640	0.640	0.640	0.640	0.640	0.640		
7	605.38	0.688	2.3390	0.072	0.014	0.9376	0.9416	0.9416	0.706	0.706	0.706	0.9416	0.706	0.706	0.706	0.706	0.9416	0.706	0.706	0.706	0.706	0.706	0.706	0.706	0.706		
PERCENT DEGESSION	5.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000		
1	1.689	1.689	1.227	1.694	1.689	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203		
2	1.711	1.711	1.212	1.689	1.689	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203		
3	1.700	1.700	1.178	1.689	1.689	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184		
4	1.641	1.641	1.157	1.689	1.689	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184		
5	1.610	1.610	1.147	1.689	1.689	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152	1.152		
6	1.560	1.560	1.131	1.689	1.689	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131		
7	1.460	1.460	1.118	1.689	1.689	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118	1.118		
PERFORMACE PARAMETERS	Total Pressure Ratio =	1.6199	1.6458	1.6564	Adiabatic Efficiency =	0.8406	0.8703	0.8703	0.8406	0.8703	0.8703	0.8406	0.8703	0.8703	0.8406	0.8703	0.8703	0.8406	0.8703	0.8703	0.8406	0.8703	0.8703	0.8406	0.8703		
	Polytropic Efficiency =	0.8511	0.8703	0.8703	Percent Design Speed =	100.1	Discharge Valve Setting =	9.0	Cor. Nozzle Weight Flow =	212.3	IE Check Flow/Noz.Flow =	0.9397	Assumed IE Flow Coeff. =	0.9500	TE Check Flow/Noz.Flow =	0.9397	Assumed TE Flow Coeff. =	0.9500									

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 9		READING NUMBER 170		DATE 4/26/1970			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INDIC ANG	INDIC LN	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL
1	37.78	37.78	39.47	-1.69	695.18		549.43		549.43	425.90	
2	38.29	38.29	39.11	-0.82	732.14		574.67		574.67	453.60	
3	38.46	38.46	39.01	-0.55	747.57		585.12		585.12	464.76	
4	40.03	40.03	39.80	0.23	720.88		550.99		550.99	482.81	
5	40.19	40.19	40.86	-0.67	733.89		557.90		557.90	471.27	
6	44.14	44.14	42.22	1.92	723.40		514.79		514.79	499.55	
7	49.14	49.14	42.76	6.38	775.07		902.99		902.99	581.53	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	
1	1.22	1.22	-11.13	12.35	36.96	549.43	549.42	549.42	11.68		
2	2.31	2.31	-10.10	12.41	35.98	574.79	574.79	574.79	23.14		
3	3.19	3.19	-8.87	12.06	35.27	613.50	613.38	613.38	34.16		
4	1.12	1.12	-8.75	9.87	38.91	554.87	554.15	554.15	10.79		
5	-0.02	-0.02	-9.10	9.08	40.21	519.87	518.76	518.76	0.23		
6	2.56	2.56	-10.58	13.14	41.98	513.08	510.99	510.99	22.87		
7	-2.40	-2.40	-12.36	9.96	51.54	500.19	498.14	498.14	20.86		
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHI					
1	0.577	0.577	0.577	1.000	0.405	0.235					
2	0.614	0.614	0.614	0.998	0.406	0.231					
3	0.637	0.637	0.637	1.047	0.395	0.262					
4	0.618	0.618	0.618	1.006	0.409	0.345					
5	0.633	0.633	0.633	0.930	0.461	0.404					
6	0.619	0.619	0.619	0.993	0.448	0.440					
7	0.664	0.664	0.664	0.990	0.556	0.381					
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	TOT PRESS LOSS	POLY HOMOEN RISE/ MEAS T RISE	STAY PRESS RISE COEFF				
1	0.457	0.457	0.457	1.5230	0.173	0.6634	0.220				
2	0.480	0.480	0.480	1.5440	0.130	0.6278	0.215				
3	0.519	0.519	0.519	1.6310	0.042	0.6256	0.244				
4	0.470	0.470	0.470	1.7420	0.029	0.8589	0.325				
5	0.442	0.442	0.442	1.8800	0.037	0.8250	0.381				
6	0.436	0.436	0.436	2.0510	0.074	0.9118	0.417				
7	0.424	0.424	0.424	2.0980	0.108	0.6740	0.396				
RADIAL POSITION	TRAV FOR PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP	LOSS COEFFICIENT	EFFICIENCY	ADB EFFICIENCY				
1	5.0000	0.972	0.972	0.955	1.000						
2	10.0000	0.979	0.979	0.971	1.000						
3	30.0000	0.984	0.990	0.990	1.000						
4	50.0000	0.985	0.994	0.993	1.000						
5	70.0000	0.976	0.989	0.991	1.000						
6	90.0000	0.988	0.977	0.993	1.000						
7	95.0000	0.945	0.972	0.972	1.000						

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.6199 0.9843 0.9776
 0.8511 0.9681
 Total Pressure Ratio =
 Polytropic Efficiency =
 Percent Design Speed = 100.1
 Cor. Nozzle Weight Flow = 212.3
 Discharge Valve Setting = 9.0
 LE Check Flow/Noz.Flow = 0.9446
 Assumed LE Flow Coeff. = 0.9550
 TE Check Flow/Noz.Flow = 0.9296
 Assumed TE Flow Coeff. = 0.9350

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS					6/26/1970				
		POINT NUMBER	10	READING NUMBER	171	DATE					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	63.21	0.64	60.60	2.61	-0.09	687.89	1516.63	682.57	7.66	1351.68	
2	61.41	-0.02	59.61	1.80	-1.23	727.10	1515.45	724.55	-0.23	1329.63	
3	54.57	0.38	56.01	-1.44	-5.90	649.51	1465.41	849.47	5.68	1194.06	
4	50.60	0.93	52.56	-1.96	-7.80	668.87	1366.43	866.25	14.03	1054.70	
5	47.86	0.31	49.71	-1.85	-8.64	854.36	1263.57	842.51	4.80	930.96	
6	47.60	0.10	47.11	0.89	-7.17	748.17	1085.46	718.10	1.29	786.43	
7	47.83	-0.11	46.13	1.70	-6.12	709.25	1028.10	674.15	-1.26	744.28	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	60.02	23.81	54.00	5.22	3.18	678.20	1238.93	638.43	272.86	1072.12	
2	59.25	21.98	54.42	4.83	2.16	682.71	1235.91	631.33	294.81	1061.28	
3	56.30	27.09	50.68	5.62	-1.73	669.19	1073.55	595.62	304.43	893.03	
4	49.08	33.23	43.79	5.29	1.52	712.52	909.81	595.89	300.41	687.38	
5	41.03	33.04	32.15	8.58	6.82	752.23	835.56	629.06	409.14	547.46	
6	27.53	37.74	14.29	13.24	20.88	825.00	737.48	645.99	500.07	336.45	
7	20.77	42.06	8.00	12.77	27.06	859.13	687.09	629.88	568.43	238.95	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO					DIFFUSION FACTOR	CHI	
1	1359.33	0.636	1.402	0.906					0.248	0.279	
2	1329.38	0.675	1.407	0.874					0.246	0.300	
3	1199.75	0.802	1.383	0.791					0.335	0.411	
4	1068.73	0.822	1.293	0.688					0.416	0.478	
5	935.56	0.806	1.193	0.747					0.423	0.533	
6	787.72	0.696	1.010	0.900					0.427	0.503	
7	743.03	0.658	0.954	0.934					0.455	0.480	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ RISE COEFF	STAT PRESS RISE	
1	1344.97	0.581	1.061	1.3340	0.194	0.036	0.6290	0.6424	0.186	0.186	
2	1316.10	0.591	1.070	1.3690	0.127	0.024	0.7523	0.7626	0.205	0.205	
3	1197.67	0.584	0.936	1.5080	0.097	0.018	0.8221	0.8303	0.315	0.315	
4	1077.79	0.616	0.787	1.6840	0.133	0.026	0.7896	0.7998	0.400	0.400	
5	956.60	0.657	0.730	1.9060	0.100	0.020	0.8474	0.8548	0.482	0.482	
6	836.72	0.720	0.644	2.2170	0.134	0.027	0.8519	0.8598	0.514	0.514	
7	807.38	0.750	0.600	2.3390	0.132	0.026	0.8674	0.8747	0.523	0.523	
RADIAL POSITION	PERCENT INGESTION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO				OVERALL PERFORMANCE SUMMARY		
1	5.0000	1.348	1.153	1.298	1.123				SPACE DATA ROTOR DATA ROTOR DATA		
2	10.0000	1.357	1.129	1.349	1.119				FIXED INST. FIXED INST. TRAV. INST.		
3	30.0000	1.372	1.109	1.392	1.121				1.3440	1.4018	1.4135
4	50.0000	1.407	1.135	1.418	1.133				0.6979	0.8024	0.7983
5	70.0000	1.459	1.124	1.416	1.123				0.7103	0.8116	0.8084
6	90.0000	1.503	1.144	1.473	1.138				Discharge Valve Setting= 30.0		
7	95.0000	1.538	1.158	1.486	1.139				100.1	216.3	
PERFORMANT PARAMETERS											
Total Pressure Ratio =											
Adiabatic Efficiency =											
Polytropic Efficiency =											
Percent Design Speed =											
Cor. Nozzle Weight Flow =											
IE Check Flow/Noz.Flow = 1.0406											
Assumed IE Flow Coeff. = 0.9650											
TE Check Flow/Noz.Flow = 0.9417											
Assumed TE Flow Coeff. = 0.9500											

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

071670

		STATOR BLADE ROW - NASA TASK IV											
		BLADE ELEMENT PERFORMANCE RESULTS					BLADE ELEMENT PERFORMANCE RESULTS						
		POINT NUMBER		READING NUMBER		DATE		POINT NUMBER		READING NUMBER		DATE	
		10		171		8/26/1970		10		171		8/26/1970	
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET AX TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL
1	23.67	23.67	39.47	-15.80	682.13	624.74	648.79	624.74	273.84	273.84	648.79	273.84	273.84
2	22.51	22.51	39.11	-17.60	697.40	641.20	641.20	641.20	304.35	304.35	641.20	304.35	304.35
3	25.39	25.39	39.01	-13.62	710.18	648.88	648.88	648.88	386.53	386.53	648.88	386.53	386.53
4	30.78	30.78	39.80	-9.02	757.01	686.34	686.34	686.34	400.49	400.49	686.34	400.49	400.49
5	30.26	30.26	40.86	-10.60	799.63	711.99	711.99	711.99	482.15	482.15	711.99	482.15	482.15
6	34.90	34.90	42.22	-7.32	851.99	775.28	775.28	775.28	545.74	545.74	775.28	545.74	545.74
7	39.25	39.25	42.76	-3.51	872.30	829.60	829.60	829.60			829.60		
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT AX TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	0.50	0.50	11.13	11.63	23.17	612.14	612.14	612.14	5.37	5.37	612.14	5.37	5.37
2	-0.61	-0.61	10.10	9.49	22.12	692.88	692.88	692.88	-7.33	-7.33	692.88	-7.33	-7.33
3	-0.08	-0.08	8.87	8.79	25.47	730.01	730.01	730.01	-1.05	-1.05	730.01	-1.05	-1.05
4	1.10	1.10	8.75	9.85	29.68	754.43	754.43	754.43	14.53	14.53	754.43	14.53	14.53
5	-1.98	-1.98	9.10	7.12	32.25	777.41	777.41	777.41	-26.86	-26.86	777.41	-26.86	-26.86
6	1.42	1.42	10.58	12.00	33.48	863.75	863.75	863.75	21.36	21.36	863.75	21.36	21.36
7	0.82	0.82	12.36	13.18	38.42	832.37	832.37	832.37	11.93	11.93	832.37	11.93	11.93
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO					DIFFUSION FACTOR				
1	0.584	0.584	0.980	0.980					0.232				-0.166
2	0.605	0.605	1.068	1.068					0.128				-0.142
3	0.622	0.622	1.138	1.138					0.104				-0.144
4	0.658	0.658	1.161	1.161					0.143				-0.108
5	0.702	0.702	1.130	1.130					0.169				-0.143
6	0.747	0.747	1.246	1.246					0.115				-0.253
7	0.763	0.763	1.242	1.242					0.189				-0.240
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ABR EFFICIENCY	POLY NOMEN RISE/ RISE COEFF	STAT PRESS RISE				
1	0.932	0.932	0.961	1.5230	0.215	0.071	12.4058	-1.0449	-0.150				
2	0.608	0.608	0.977	1.5440	0.157	0.051	12.4058	12.4058	-0.128				
3	0.643	0.643	0.995	1.6310	0.171	0.052	12.4058	12.4058	-0.129				
4	0.662	0.662	0.982	1.7420	0.143	0.041	12.4058	12.4058	-0.096				
5	0.687	0.687	0.982	1.8800	0.116	0.031	12.4058	12.4058	-0.124				
6	0.767	0.767	0.979	2.0510	0.187	0.046	12.4058	12.4058	-0.213				
7	0.735	0.735	0.982	2.0980	0.236	0.056	12.4058	12.4058	-0.201				
RADIAL POSITION	PERCENT FLOW	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ABR EFFICIENCY	POLY NOMEN RISE/ RISE COEFF	STAT PRESS RISE				
1	5.0000	0.925	0.961	0.954	1.000	0.071	12.4058	-1.0449	-0.150				
2	17.0000	0.967	0.977	0.966	1.000	0.051	12.4058	12.4058	-0.128				
3	30.0000	0.978	0.995	0.961	1.000	0.052	12.4058	12.4058	-0.129				
4	50.0000	0.971	0.982	0.964	1.000	0.041	12.4058	12.4058	-0.096				
5	70.0000	0.939	0.983	0.967	1.000	0.031	12.4058	12.4058	-0.124				
6	90.0000	0.923	0.979	0.941	1.000	0.046	12.4058	12.4058	-0.213				
7	95.0000	0.882	0.973	0.921	1.000	0.056	12.4058	12.4058	-0.201				

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.3440 0.9588 0.9522
 Polytropic Efficiency = 0.7103 0.8752 0.7353
 Percent Design Speed = 100.1 Discharge Valve Setting= 30.0
 Cor. Nozzle Weight Flow= 216.3

IE Check Flow/Noz. Flow = 0.9466 TE Check Flow/Noz. Flow = 0.9550
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9450

081970 ROTOR BLADE NEW - NASA TASK IV
 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

POINT NUMBER 13		BLADE ELEMENT PERFORMANCE RESULTS										8/18/1970									
RADIALLY POSITION		REL INLET FLOW ANG		ABS INLET FLOW ANG		CHBR LN LE ANGLE		INCLD ANG MN CHBR LN		INCLD ANG SUCY SURF		INLET ABS VELOCITY		INLET AX VELOCITY		INLET ABS YANG VEL		INLET REL YANG VEL			
1	2	62.95	-0.58	60.60	2.35	59.61	1.53	58.74	25.51	54.92	23.29	54.92	702.47	1535.08	697.05	7.01	1364.94	1335.32	7.31	1335.32	
2	3	61.14	-0.57	59.01	1.53	58.01	1.53	57.01	25.51	54.92	23.29	54.92	735.58	1535.08	735.58	3.66	1194.185	1194.185	3.66	1194.185	
3	4	54.52	1.05	56.01	1.49	55.01	1.49	54.01	25.51	54.92	23.29	54.92	851.58	1467.26	851.58	16.29	1051.134	1051.134	16.29	1051.134	
4	5	50.26	1.07	52.56	1.30	51.56	1.30	50.56	25.51	54.92	23.29	54.92	876.88	1368.92	876.88	4.01	930.158	930.158	4.01	930.158	
5	6	47.75	0.27	49.71	1.96	48.71	1.96	47.71	25.51	54.92	23.29	54.92	851.21	1265.22	851.21	10.19	776.72	776.72	10.19	776.72	
6	7	47.13	0.81	49.11	1.02	48.11	1.02	47.11	25.51	54.92	23.29	54.92	751.23	1088.52	751.23	12.01	730.125	730.125	12.01	730.125	
7		47.84	1.04	48.84	1.71	47.84	1.71	46.84	25.51	54.92	23.29	54.92	695.85	1008.63	695.85						
RADIALLY POSITION		REL EXIT FLOW ANG		ABS EXIT FLOW ANG		CHBR LN TE ANGLE		DEV ANGLE TE		TURN ANGLE		EXIT ABS VELOCITY		EXIT AX VELOCITY		EXIT ABS YANG VEL		EXIT REL YANG VEL			
1	2	58.74	25.51	54.92	3.94	54.92	3.94	54.92	4.29	2.43	691.47	1220.02	633.41	832.16	301.83	1041.76	1041.76	1041.76	1041.76		
2	3	58.71	23.29	54.92	4.29	54.92	4.29	54.92	4.73	0.89	684.10	1065.73	604.88	604.88	319.15	877.129	877.129	877.129	877.129		
3	4	55.41	27.82	50.58	4.73	50.58	4.73	50.58	4.73	1.74	720.01	905.00	599.37	599.37	396.74	677.194	677.194	677.194	677.194		
4	5	48.52	33.63	43.79	5.86	43.79	5.86	43.79	7.86	2.74	763.77	837.92	632.83	632.83	424.38	531.24	531.24	531.24	531.24		
5	6	40.01	33.85	38.25	7.86	38.25	7.86	38.25	14.05	3.79	803.29	706.16	614.02	614.02	504.67	331.18	331.18	331.18	331.18		
6	7	28.34	39.42	14.69	14.05	14.69	14.05	14.69	32.61	2.22	840.77	644.26	591.24	591.24	584.19	222.137	222.137	222.137	222.137		
7		20.61	44.66	8.00	0.938	8.00	0.938	8.00													
RADIALLY POSITION		ROTOR SPD AT INLET		INLET ABS MACH NO		INLET REL MACH NO		AXIAL VEL RATIO		LOSS COEFFICIENT		TOT PRESS LOSS PARAM		EFFICIENCY		POLY MOMEN RISE/ RISE		STAT PRESS RISE COEFF			
1	2	1357.93	0.654	1.428	0.907	1.428	0.907	1.428	0.177	0.034	0.6747	0.6881	0.191	0.191	0.191	0.191	0.191	0.191	0.191		
2	3	1328.01	0.690	1.425	0.861	1.425	0.861	1.425	0.104	0.020	0.8033	0.8123	0.320	0.320	0.320	0.320	0.320	0.320	0.320		
3	4	1198.51	0.808	1.392	0.710	1.392	0.710	1.392	0.124	0.023	0.7792	0.7853	0.487	0.487	0.487	0.487	0.487	0.487	0.487		
4	5	1067.63	0.836	1.305	0.586	1.305	0.586	1.305	0.167	0.033	0.7398	0.7520	0.488	0.488	0.488	0.488	0.488	0.488	0.488		
5	6	934.60	0.816	1.204	0.749	1.204	0.749	1.204	0.121	0.024	0.8653	0.8653	0.531	0.531	0.531	0.531	0.531	0.531	0.531		
6	7	786.91	0.704	1.012	0.652	1.012	0.652	1.012	0.158	0.032	0.8470	0.8554	0.557	0.557	0.557	0.557	0.557	0.557	0.557		
7		742.26	0.647	0.938	0.694	0.938	0.694	0.938													
RADIALLY POSITION		PERCENT IMMERSION		TRAV TOT PRESS RATIO		TRAV TOT TEMP RATIO		FIXED TOT PRESS RATIO		FIXED TOT TEMP RATIO		LOSS		TOT PRESS LOSS		EFFICIENCY		POLY MOMEN RISE/ RISE		STAT PRESS RISE COEFF	
1	2	5.0000	1.392	1.336	1.345	1.336	1.345	1.336	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	1.131	
2	3	10.0000	1.392	1.322	1.390	1.322	1.390	1.322	1.123	1.123	1.123	1.123	1.123	1.123	1.123	1.123	1.123	1.123	1.123	1.123	
3	4	30.0000	1.396	1.165	1.393	1.165	1.393	1.165	1.128	1.128	1.128	1.128	1.128	1.128	1.128	1.128	1.128	1.128	1.128	1.128	
4	5	50.0000	1.424	1.132	1.406	1.132	1.406	1.132	1.139	1.139	1.139	1.139	1.139	1.139	1.139	1.139	1.139	1.139	1.139	1.139	
5	6	70.0000	1.484	1.131	1.421	1.131	1.421	1.131	1.126	1.126	1.126	1.126	1.126	1.126	1.126	1.126	1.126	1.126	1.126	1.126	
6	7	90.0000	1.490	1.137	1.480	1.137	1.480	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	1.137	
7		95.0000	1.546	1.137	1.488	1.137	1.488	1.137	1.142	1.142	1.142	1.142	1.142	1.142	1.142	1.142	1.142	1.142	1.142	1.142	

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.3552 1.4114 1.4324
 Adiabatic Efficiency = 0.6945 0.7920 0.8169
 Polytropic Efficiency = 0.7074 0.8019 0.8260
 Percent Design Speed = 100.0 Discharge Valve Setting= 30.0
 Cor. Nozzle Weight Flow= 221.5
 LE Check Flow/Noz.Flow = 1.0237 TE Check Flow/Noz.Flow = 0.9320
 Assumed LE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9700

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

081970		STATOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		0/18/1970	
POINT NUMBER 13		READING NUMBER 240		DATE			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG	INCLD ANG	INLET ABS VELOCITY	INLET AX VELOCITY
1	25.36	22.79	39.47	-14.11	707.23	639.07	639.07
2	26.07	31.01	39.11	-16.32	706.27	651.08	651.08
3	31.15	39.80	39.01	-12.94	726.00	651.77	651.77
4	31.00	40.86	40.86	-8.65	764.91	653.15	653.15
5	36.61	42.22	42.22	-9.86	811.47	691.27	691.27
6	41.89	42.76	42.76	-5.61	824.53	654.92	654.92
7				-0.87	868.76	625.34	625.34
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT AX VELOCITY
1	0.79	0.79	-11.13	11.92	24.57	655.16	655.16
2	0.64	0.64	-10.10	8.97	23.93	730.41	730.41
3	0.64	0.64	-8.67	9.51	25.43	748.92	748.92
4	0.16	0.16	-8.75	8.91	30.99	756.06	756.06
5	0.81	0.81	-9.10	7.29	42.81	786.04	786.04
6	0.27	0.27	-10.58	10.85	38.34	873.15	873.15
7	1.94	1.94	-18.56	14.30	39.95	844.08	844.08
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS MACH	POLY MOMEN RISE/ RISE COEFF
1	0.615	0.615	0.615	1.025	0.225	0.074	-1.3884
2	0.617	0.617	0.617	1.122	0.148	0.048	2.1968
3	0.635	0.635	0.635	1.149	0.115	0.035	2.4753
4	0.667	0.667	0.667	1.161	0.102	0.029	18.5261
5	0.717	0.717	0.717	1.137	0.133	0.039	3.4945
6	0.727	0.727	0.727	1.333	0.225	0.059	2.5459
7	0.747	0.747	0.747	1.350	0.274	0.065	63.7279
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	ADB EFFICIENCY	STAT PRESS RISE COEFF
1	5.0000	0.920	0.920	0.948	1.000	0.074	-0.1162
2	10.0000	0.976	0.976	0.967	1.000	0.048	-0.1151
3	30.0000	0.971	0.971	0.973	1.000	0.035	-0.1155
4	50.0000	0.958	0.958	0.973	1.000	0.029	-0.1114
5	70.0000	0.925	0.925	0.960	1.000	0.039	-0.1144
6	90.0000	0.927	0.927	0.933	1.000	0.059	-0.1281
7	95.0000	0.883	0.883	0.912	1.000	0.065	-0.1265
OVERALL PERFORMANCE SUMMARY							
PERFORMANCE PARAMETERS				STAGE DATA STATOR DATA STATOR DATA			
Total Pressure Ratio = 1.3552				FIXED INST. FLYED INST. TRAV. INST.			
Polytropic Efficiency = 0.7074				0.9602 0.9468			
Percent Design Speed = 100.0				Discharge Valve Settings= 30.0			
Cor. Nozzle Weight Flow= 221.5							
I.E. Check Flow/Noz.Flow = 0.9369 TE Check Flow/Noz.Flow = 0.9471							
Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9550							

DIFFUSION FACTOR = 0.210, 0.097, 0.099, 0.154, 0.172, 0.078, 0.148

CHI = 0.181, 0.169, 0.174, 0.129, 0.167, 0.134, 0.118

081970
 TABLE XII - TASK 1 STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE RCH • NASA TASK IV																		
BLADE ELEMENT PERFORMANCE RESULTS																		
POINT NUMBER 14 READING NUMBER 241 DATE 07/07/1970																		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG	MN CMBR LN	SUCT SURF	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET REF TANG VEL					
1	63.36	-0.25	60.60	2.76	0.06	0.06	0.06	687.54	1523.89	689.26	-2.99	1359.98						
2	61.06	-0.47	59.61	1.45	-1.58	-1.58	-1.58	739.74	1524.62	737.12	-6.06	1333.15						
3	54.97	0.61	56.01	-1.04	0.42	0.42	0.42	831.50	1448.38	831.40	13.71	1189.97						
4	52.98	-0.50	52.56	0.76	-0.96	-0.96	-0.96	812.37	1346.62	810.00	-7.12	1074.00						
5	50.47	-0.61	49.71	3.05	4.71	4.71	4.71	992.87	1234.89	981.58	-13.05	947.00						
6	50.16	0.14	47.11	4.28	3.05	3.05	3.05	889.74	1051.24	861.98	-6.99	993.36						
7	50.41		46.13		4.28	4.28	4.28	644.11	961.23	612.24	1.52	740.23						
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN YE ANGLE	REL DEV ANG YE	REL TURN ANGLE	REL TURN ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT REF TANG VEL					
1	57.27	41.24	54.80	2.47	6.09	6.09	6.09	935.76	1022.02	552.01	483.95	856.71						
2	57.11	38.33	54.42	2.69	3.95	3.95	3.95	818.12	1036.24	562.19	444.52	869.31						
3	53.51	40.74	50.68	2.83	1.46	1.46	1.46	813.18	908.48	540.25	468.36	730.25						
4	49.44	42.89	43.79	3.65	3.54	3.54	3.54	900.34	789.09	513.08	476.54	599.39						
5	41.06	44.95	32.15	3.91	5.40	5.40	5.40	923.02	678.87	509.89	509.89	445.07						
6	33.54	49.28	14.29	19.25	16.42	16.42	16.42	906.43	555.22	457.76	531.84	303.44						
7	20.82	54.77	0.00	12.82	29.59	29.59	29.59	983.00	489.65	448.77	635.37	170.62						
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VFL RATIO	INLET ABS MACH NO	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS PERCENT	YGT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF
1	1356.99	0.638	1.414	0.809	0.855	1.3340	1.3340	1.227	1.721	1.210	1.210	0.166	0.166	0.034	0.7983	0.8131	0.349	0.349
2	1327.09	0.691	1.425	0.763	0.608	1.3690	1.3690	1.198	1.715	1.202	1.202	0.141	0.141	0.028	0.8245	0.8373	0.369	0.369
3	1197.68	0.787	1.371	0.650	0.506	1.5080	1.5080	1.165	1.696	1.187	1.187	0.100	0.100	0.020	0.8738	0.8828	0.749	0.749
4	1066.89	0.747	1.272	0.633	0.674	1.6840	1.6840	1.173	1.642	1.173	1.173	0.097	0.097	0.019	0.8810	0.8891	0.553	0.553
5	933.95	0.747	1.164	0.654	0.585	1.8060	1.8060	1.155	1.607	1.155	1.155	0.048	0.048	0.009	0.9431	0.9468	0.627	0.627
6	786.36	0.841	0.978	0.691	0.609	2.2170	2.2170	1.151	1.577	1.151	1.151	0.083	0.083	0.016	0.9198	0.9248	0.720	0.720
7	741.75	0.596	0.909	0.733	0.677	2.3390	2.3390	1.155	1.607	1.155	1.155	0.073	0.073	0.015	0.9388	0.9427	0.802	0.802
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS PERCENT	YGT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF				
1	1342.65	0.616	0.855	1.227	1.721	1.210	1.210	0.166	0.166	0.034	0.7983	0.8131	0.349	0.349				
2	1313.83	0.608	0.877	1.198	1.715	1.202	1.202	0.141	0.141	0.028	0.8245	0.8373	0.369	0.369				
3	1195.61	0.606	0.772	1.165	1.696	1.187	1.187	0.100	0.100	0.020	0.8738	0.8828	0.749	0.749				
4	1075.93	0.598	0.674	1.173	1.642	1.173	1.173	0.097	0.097	0.019	0.8810	0.8891	0.553	0.553				
5	954.95	0.623	0.585	1.155	1.607	1.155	1.155	0.048	0.048	0.009	0.9431	0.9468	0.627	0.627				
6	835.28	0.609	0.479	1.151	1.577	1.151	1.151	0.083	0.083	0.016	0.9198	0.9248	0.720	0.720				
7	805.99	0.677	0.423	1.155	1.607	1.155	1.155	0.073	0.073	0.015	0.9388	0.9427	0.802	0.802				

OVERALL PERFORMANCE SUMMARY

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.
1.6383	1.6617	1.6769
0.8483	0.8746	0.8783
0.8585	0.8833	0.8868
Discharge Valve Setting = 9.0		
Cor. Nozzle Weight Flow = 215.3		

LE Check Flow/Noz.Flow = 1.0369
 Assumed LE Flow Coeff. = 0.9850
 IE Check Flow/Noz.Flow = 0.9282
 Assumed IE Flow Coeff. = 0.9500

081970 **TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)**

		STATOR BLADE ROW # NASA TASK IV																			
		BLADE ELEMENT PERFORMANCE RESULTS							BLADE ELEMENT PERFORMANCE RESULTS												
		POINT NUMBER	14	READING NUMBER	241	DATE	8718/1970														
RAJIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN	INCID ANG LN	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL				
1	41.07	39.47	1.60	1.77	40.44	939.27	557.32	557.32	557.32	489.69	489.69	557.32	489.69	489.69	557.32	489.69	489.69				
2	37.75	39.11	-1.36	1.77	40.44	939.27	576.29	576.29	576.29	466.13	466.13	576.29	466.13	466.13	576.29	466.13	466.13				
3	38.81	39.01	-0.20	1.77	40.44	939.27	577.96	577.96	577.96	464.91	464.91	577.96	464.91	464.91	577.96	464.91	464.91				
4	40.44	39.80	0.64	1.77	40.44	939.27	555.64	555.64	555.64	471.80	471.80	555.64	471.80	471.80	555.64	471.80	471.80				
5	42.24	40.86	1.38	1.77	40.44	939.27	549.57	549.57	549.57	499.11	499.11	549.57	499.11	499.11	549.57	499.11	499.11				
6	46.73	42.22	4.51	1.77	40.44	939.27	482.63	482.63	482.63	512.77	512.77	482.63	512.77	512.77	482.63	512.77	512.77				
7	52.33	42.76	9.57	1.77	40.44	939.27	471.02	471.02	471.02	610.01	610.01	471.02	610.01	610.01	471.02	610.01	610.01				
RAJIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL					
1	0.64	0.64	-11.13	11.77	40.44	958.34	558.30	558.30	558.30	6.19	6.19	558.30	6.19	6.19	558.30	6.19	6.19				
2	2.24	2.24	-10.10	12.34	35.51	995.63	595.14	595.14	595.14	23.28	23.28	595.14	23.28	23.28	595.14	23.28	23.28				
3	3.07	3.07	-8.87	11.94	35.75	601.29	600.18	600.18	600.18	32.15	32.15	600.18	32.15	32.15	600.18	32.15	32.15				
4	2.07	2.07	-8.75	10.82	38.36	845.48	544.52	544.52	544.52	19.73	19.73	544.52	19.73	19.73	544.52	19.73	19.73				
5	1.07	1.07	-9.10	10.17	41.17	918.09	516.89	516.89	516.89	9.68	9.68	516.89	9.68	9.68	516.89	9.68	9.68				
6	3.56	3.56	-10.58	14.14	43.17	862.15	499.64	499.64	499.64	31.12	31.12	499.64	31.12	31.12	499.64	31.12	31.12				
7	-1.04	-1.04	-12.36	11.32	53.36	493.00	491.33	491.33	491.33	-8.88	-8.88	491.33	-8.88	-8.88	491.33	-8.88	-8.88				
RAJIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CH1	DIFFUSION FACTOR	CH1	DIFFUSION FACTOR	CH1					
1	0.619	0.465	0.619	1.002	1.5230	0.144	0.047	0.5725	0.7949	0.220	0.458	0.237	0.458	0.237	0.458	0.237					
2	0.617	0.499	0.617	1.033	1.5440	0.074	0.024	0.7949	0.7949	0.244	0.370	0.262	0.370	0.262	0.370	0.262					
3	0.633	0.507	0.633	1.038	1.6310	0.038	0.042	0.8362	0.8362	0.264	0.368	0.283	0.368	0.283	0.368	0.283					
4	0.624	0.461	0.624	0.984	1.7420	0.031	0.009	0.8294	0.8294	0.339	0.428	0.361	0.428	0.361	0.428	0.361					
5	0.644	0.440	0.644	0.941	1.8800	0.049	0.013	0.8050	0.8050	0.386	0.478	0.410	0.478	0.410	0.478	0.410					
6	0.612	0.427	0.612	1.035	2.0510	0.069	0.017	0.9375	0.9375	0.441	0.454	0.464	0.454	0.464	0.454	0.464					
7	0.670	0.410	0.670	1.043	2.0980	0.105	0.025	0.8558	0.8558	0.357	0.551	0.382	0.551	0.382	0.551	0.382					
RAJIAL POSITION	PERCENT REPERIOD	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CH1	DIFFUSION FACTOR	CH1	DIFFUSION FACTOR	CH1					
1	5.0000	0.954	0.980	0.967	1.000	0.144	0.047	0.5725	0.7949	0.220	0.458	0.237	0.458	0.237	0.458	0.237					
2	10.0000	0.982	0.998	0.983	1.000	0.074	0.024	0.7949	0.7949	0.244	0.370	0.262	0.370	0.262	0.370	0.262					
3	30.0000	0.985	0.995	0.991	1.000	0.038	0.042	0.8362	0.8362	0.264	0.368	0.283	0.368	0.283	0.368	0.283					
4	50.0000	0.980	0.995	0.993	1.000	0.031	0.009	0.8294	0.8294	0.339	0.428	0.361	0.428	0.361	0.428	0.361					
5	70.0000	0.972	0.991	0.988	1.000	0.049	0.013	0.8050	0.8050	0.386	0.478	0.410	0.478	0.410	0.478	0.410					
6	90.0000	0.992	0.993	0.985	1.000	0.069	0.017	0.9375	0.9375	0.441	0.454	0.464	0.454	0.464	0.454	0.464					
7	95.0000	0.939	0.904	0.972	1.000	0.105	0.025	0.8558	0.8558	0.357	0.551	0.382	0.551	0.382	0.551	0.382					

OVERALL PERFORMANCE SUMMARY
 STATOR DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST. 0.9769
 Total Pressure Ratio = 1.6383 0.9859 0.9719
 Polytropic Efficiency = 0.8585
 Percent Design Speed = 99.9 Discharge Valve Setting= 9.0
 Cor. Nozzle Weight Flow= 215.3
 IE Check Flow/Noz.Flow = 0.9331 IE Check Flow/Noz.Flow = 0.9216
 Assumed IE Flow Coeff. = 0.9550 Assumed IE Flow Coeff. = 0.9350

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

MOTOR BLADE NO. • NASA TASK IV

POINT NUMBER 15		READING NUMBER 242		DATE 8/18/1970							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INLET ANS MN CHBR LN	INCLD ANS SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	67.88	61.79	60.60	7.28	4.98	562.40	1482.99	557.82	17.42	1372.32	
2	66.52	61.83	59.61	6.91	3.88	536.09	1465.95	583.73	18.67	1343.71	
3	61.42	61.78	56.01	5.41	0.95	662.94	1385.22	662.07	20.62	1216.46	
4	59.71	63.01	52.56	7.15	1.31	644.81	1373.70	642.07	33.80	1099.04	
5	57.78	63.16	49.71	8.07	1.28	618.28	1346.55	608.79	33.66	964.16	
6	57.08	62.70	47.11	9.97	2.31	546.82	976.66	524.31	24.70	803.85	
7	56.84	62.90	46.13	10.71	2.81	513.85	965.99	488.38	26.82	747.42	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANGLE TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	54.99	41.36	54.80	0.19	32.89	775.56	1013.72	580.80	511.36	829.23	
2	54.56	48.10	54.42	0.14	11.96	780.79	898.91	520.73	580.27	731.53	
3	53.19	49.83	50.68	2.51	8.24	734.28	790.46	473.59	561.00	632.76	
4	47.93	53.44	43.79	4.14	11.78	734.28	652.84	437.39	589.72	481.56	
5	41.90	56.15	32.15	9.75	13.88	717.50	537.44	399.22	595.25	356.23	
6	30.55	56.17	14.29	16.26	26.53	722.90	470.49	400.48	597.59	296.40	
7	15.33	57.65	8.00	7.33	11.31	816.98	489.86	634.31	685.68	110.06	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHI					
1	1354.90	0.513	1.354	1.041	0.449	0.488					
2	1325.94	0.536	1.342	0.992	0.535	0.557					
3	1195.83	0.613	1.280	0.715	0.568	0.588					
4	1065.24	0.595	1.176	0.681	0.633	0.625					
5	932.51	0.570	1.058	0.656	0.676	0.667					
6	785.15	0.501	0.895	0.764	0.665	0.667					
7	740.60	0.469	0.829	0.889	0.663	0.709					
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS TOY PRESS LOSS P/AM	EFFICIENCY	ADD EFFICIENCY	POLY MOMENT RISE/STAB	MEAS T RISE	COEFF RISE	
1	1340.58	0.637	0.932	1.3340	0.057	0.7353	0.7572	0.7379	0.365	0.379	
2	1311.60	0.648	0.746	1.3690	0.047	0.7741	0.8423	0.827	0.468	0.527	
3	1193.76	0.617	0.664	1.5080	0.032	0.8291	0.8373	0.837	0.598	0.714	
4	1074.27	0.620	0.552	1.6840	0.034	0.8249	0.8540	0.855	0.714	0.806	
5	953.48	0.612	0.458	1.9060	0.029	0.8671	0.8658	0.865	0.867	0.866	
6	833.99	0.621	0.404	2.2170	0.032	0.8671	0.8658	0.865	0.867	0.866	
7	804.75	0.705	0.397	2.3390	0.039	0.8658	0.8658	0.865	0.867	0.866	
RADIAL POSITION	PERCENT IMMERSED	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS TOY PRESS LOSS P/AM	EFFICIENCY	ADD EFFICIENCY	POLY MOMENT RISE/STAB	MEAS T RISE	COEFF RISE
1	97.0000	1.891	1.873	1.854	1.854	0.057	0.7353	0.7572	0.7379	0.365	0.379
2	10.0000	1.888	1.248	1.658	1.250	0.047	0.7741	0.8423	0.827	0.468	0.527
3	30.0000	1.801	1.213	1.771	1.214	0.032	0.8291	0.8373	0.837	0.598	0.714
4	50.0000	1.745	1.202	1.685	1.195	0.034	0.8249	0.8540	0.855	0.714	0.806
5	70.0000	1.666	1.163	1.628	1.175	0.029	0.8671	0.8658	0.865	0.867	0.866
6	90.0000	1.624	1.169	1.591	1.164	0.032	0.8671	0.8658	0.865	0.867	0.866
7	95.0000	1.748	1.182	1.598	1.166	0.039	0.8658	0.8658	0.865	0.867	0.866

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.6918 1.7390 1.7746
 0.7667 0.8101 0.8311
 0.7832 0.8243 0.8441
 Discharge Valve Setting = 4.5
 Cor. Nozzle Weight Flow = 184.8
 Percent Design Speed = 99.8
 Total Pressure Ratio =
 Adiabatic Efficiency =
 Polytropic Efficiency =
 IE Check Flow/Noz.Flow = 1.0701
 Assumed LE Flow Coeff. = 0.9891
 Assumed TE Flow Coeff. = 0.9500

081970 **TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)**

STATOR BLADE NO. 4 - NASA TASK IV															
BLADE ELEMENT PERFORMANCE RESULTS															
POINT NUMBER 15 READING NUMBER 242 DATE 8/18/1978															
RADIAL POSITION	REL INLET FLOW ANG	INLET ABS FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	41.19	47.52	39.47	1.72	779.30	779.30	586.45	513.20	582.38	560.47	504.28	504.28	560.47	504.28	560.47
2	48.02	51.20	39.01	9.01	754.18	754.18	583.85	469.37	583.85	469.37	426.30	426.30	583.85	469.37	583.85
3	53.81	53.82	42.22	11.60	717.90	717.90	421.36	421.36	576.17	421.36	421.36	421.36	576.17	421.36	576.17
4	51.30	51.30	42.76	12.54	805.158	805.158	455.77	455.77	658.32	455.77	455.77	455.77	658.32	455.77	658.32
5	51.30	51.30	42.76	12.54	805.158	805.158	455.77	455.77	658.32	455.77	455.77	455.77	658.32	455.77	658.32
6	51.30	51.30	42.76	12.54	805.158	805.158	455.77	455.77	658.32	455.77	455.77	455.77	658.32	455.77	658.32
7	51.30	51.30	42.76	12.54	805.158	805.158	455.77	455.77	658.32	455.77	455.77	455.77	658.32	455.77	658.32
1	2.84	5.33	-11.13	13.97	621.19	621.19	620.42	30.73	620.42	30.73	60.45	60.45	620.42	30.73	620.42
2	1.09	1.09	-8.87	9.94	650.37	650.37	647.51	60.45	647.51	60.45	10.76	10.76	647.51	60.45	647.51
3	3.80	3.80	-8.75	4.95	476.93	476.93	475.36	31.59	475.36	31.59	425.32	425.32	475.36	31.59	475.36
4	0.28	0.28	-9.10	9.38	426.124	426.124	425.32	2.11	425.32	2.11	383.73	383.73	425.32	2.11	425.32
5	8.58	8.58	-10.58	19.16	389.124	389.124	383.73	57.91	383.73	57.91	405.19	405.19	383.73	57.91	383.73
6	-2.63	-2.63	-12.36	9.53	407.700	407.700	405.19	20.04	405.19	20.04	405.19	405.19	405.19	20.04	405.19
7	-2.63	-2.63	-12.36	9.53	407.700	407.700	405.19	20.04	405.19	20.04	405.19	405.19	405.19	20.04	405.19
1	0.640	0.656	1.214	1.119	1.058	1.058	1.058	0.179	1.058	0.179	0.390	0.390	1.058	0.179	1.058
2	0.635	0.635	1.013	0.998	0.998	0.998	0.998	0.199	0.998	0.199	0.474	0.474	0.998	0.199	0.998
3	0.616	0.616	0.911	0.889	0.889	0.889	0.889	0.365	0.889	0.365	0.622	0.622	0.889	0.365	0.889
4	0.694	0.694	0.889	0.889	0.889	0.889	0.889	0.478	0.889	0.478	0.630	0.630	0.889	0.478	0.889
5	0.694	0.694	0.889	0.889	0.889	0.889	0.889	0.543	0.889	0.543	0.630	0.630	0.889	0.543	0.889
6	0.694	0.694	0.889	0.889	0.889	0.889	0.889	0.692	0.889	0.692	0.630	0.630	0.889	0.692	0.889
7	0.694	0.694	0.889	0.889	0.889	0.889	0.889	0.692	0.889	0.692	0.630	0.630	0.889	0.692	0.889
1	0.508	0.536	1.540	1.635	1.523	1.523	1.523	0.145	1.523	0.145	0.049	0.049	1.523	0.145	1.523
2	0.469	0.469	1.631	1.742	1.631	1.631	1.631	0.183	1.631	0.183	0.034	0.034	1.631	0.183	1.631
3	0.397	0.397	1.420	1.800	1.420	1.420	1.420	0.250	1.420	0.250	0.041	0.041	1.420	0.250	1.420
4	0.357	0.357	1.880	2.050	1.880	1.880	1.880	0.362	1.880	0.362	0.024	0.024	1.880	0.362	1.880
5	0.327	0.327	2.050	2.090	2.050	2.050	2.050	0.455	2.050	0.455	0.020	0.020	2.050	0.455	2.050
6	0.342	0.342	2.090	2.090	2.090	2.090	2.090	0.521	2.090	0.521	0.014	0.014	2.090	0.521	2.090
7	0.342	0.342	2.090	2.090	2.090	2.090	2.090	0.584	2.090	0.584	0.014	0.014	2.090	0.584	2.090
1	5.000	10.000	80.000	50.000	70.000	90.000	95.000	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
2	5.000	10.000	80.000	50.000	70.000	90.000	95.000	EFFICIENCY	EFFICIENCY	EFFICIENCY	EFFICIENCY	EFFICIENCY	EFFICIENCY	EFFICIENCY	EFFICIENCY
3	5.000	10.000	80.000	50.000	70.000	90.000	95.000	POLY MOMEN	POLY MOMEN	POLY MOMEN	POLY MOMEN	POLY MOMEN	POLY MOMEN	POLY MOMEN	POLY MOMEN
4	5.000	10.000	80.000	50.000	70.000	90.000	95.000	RISE	RISE	RISE	RISE	RISE	RISE	RISE	RISE
5	5.000	10.000	80.000	50.000	70.000	90.000	95.000	HEAT	HEAT	HEAT	HEAT	HEAT	HEAT	HEAT	HEAT
6	5.000	10.000	80.000	50.000	70.000	90.000	95.000	COEFF	COEFF	COEFF	COEFF	COEFF	COEFF	COEFF	COEFF
7	5.000	10.000	80.000	50.000	70.000	90.000	95.000	STATOR	STATOR	STATOR	STATOR	STATOR	STATOR	STATOR	STATOR
OVERALL PERFORMANCE SUMMARY															
STAGE DATA STATOR DATA STATOR DATA															
FIXED INST. FIXED INST. TRAV. INST.															
1.6918 0.9729 0.9531															
0.7832 0.9501 0.9039															
Discharge Valve Settings = 4.5															
Cor. Nozzle Weight Flow = 184.8															
Percent Design Speed = 99.8															
IE Check Flow/Noz.Flow = 0.9943															
Assumed IE Flow Coeff. = 0.9550															
TE Check Flow/Noz.Flow = 1.0307															
Assumed TE Flow Coeff. = 0.9350															

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW = NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 13		DATE 9/1/1970					
		READING NUMBER 13	DATE								
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG	INCID ANG	INLET KBS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ARS TANG VEL	INLET REC TANG VEL	
1	63.24	-0.34	60.60	2.64	-0.06	691.828	1525.86	685.97	-4.05	1368.29	
2	61.57	0.26	59.61	1.66	-1.57	727.82	1510.04	725.26	3.27	1358.09	
3	53.74	1.15	56.01	-2.07	-6.53	859.22	1459.86	859.02	17.29	1179.73	
4	50.27	1.28	52.56	-2.29	-8.13	872.89	1362.89	870.16	19.44	1046.86	
5	47.52	0.60	49.71	-2.19	-6.98	858.59	1261.67	846.65	8.93	924.50	
6	47.02	0.57	47.11	-0.09	-7.75	756.04	1085.36	725.62	7.17	778.76	
7	47.74	0.17	46.13	1.61	-6.29	706.71	-822.75	671.74	2.03	739.31	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT KBS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS TANG VEL	EXIT REC TANG VEL	
1	58.18	25.24	54.80	3.58	4.86	710.19	1222.68	640.30	301.87	1040.05	
2	58.36	23.30	54.42	3.94	2.91	698.18	1220.04	639.52	275.38	1037.72	
3	55.55	28.89	50.68	4.87	-1.61	679.28	1051.27	594.57	328.11	866.83	
4	47.95	34.70	43.79	4.16	2.31	726.27	891.50	597.00	413.38	661.96	
5	39.76	34.65	32.15	7.61	7.76	763.52	816.86	626.67	433.05	521.37	
6	29.34	35.43	14.29	14.05	18.69	801.28	705.12	613.13	584.17	330.65	
7	20.56	44.88	8.00	12.66	27.08	837.60	639.62	586.80	584.30	221.25	
RADIAL POSITION	ROTOR SPD AT INLET	INLET MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT RISE COEFF	
1	1359.24	0.643	1.420	0.933	0.174	0.034	0.6818	0.6950	0.273	0.190	
2	1326.36	0.680	1.411	0.882	0.122	0.023	0.7788	0.7890	0.258	0.214	
3	1197.02	0.818	1.349	0.692	0.129	0.024	0.7719	0.7823	0.350	0.331	
4	1066.30	0.832	1.300	0.686	0.166	0.033	0.7432	0.7554	0.432	0.411	
5	933.43	0.817	1.201	0.740	0.093	0.019	0.8603	0.8672	0.442	0.490	
6	789.93	0.709	1.018	0.845	0.132	0.026	0.8527	0.8606	0.456	0.542	
7	741.33	0.659	0.953	0.874	0.158	0.032	0.8429	0.8514	0.502	0.500	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT RISE COEFF	
1	1441.91	0.616	1.061	1.3340	0.174	0.034	0.6818	0.6950	0.273	0.190	
2	1413.10	0.611	1.067	1.3690	0.122	0.023	0.7788	0.7890	0.258	0.214	
3	1244.95	0.593	0.917	1.5880	0.129	0.024	0.7719	0.7823	0.350	0.331	
4	1075.34	0.631	0.775	1.6840	0.166	0.033	0.7432	0.7554	0.432	0.411	
5	954.43	0.671	0.717	1.9060	0.093	0.019	0.8603	0.8672	0.442	0.490	
6	834.82	0.704	0.620	2.2170	0.132	0.026	0.8527	0.8606	0.456	0.542	
7	795.55	0.736	0.562	2.3390	0.158	0.032	0.8429	0.8514	0.502	0.500	
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	OVERALL PERFORMANCE SUMMARY			
1	5.0000	1.401	1.144	1.349	1.131	1.131	1.131	STAGE DATA ROTOR DATA ROVR DATA			
2	10.0000	1.394	1.123	1.398	1.129	1.129	1.129	FIXED INST. FIXED INST. TRAV. INST.			
3	30.0000	1.435	1.142	1.409	1.139	1.139	1.139	1.3555 1.4133 1.4354			
4	50.0000	1.481	1.130	1.431	1.125	1.125	1.125	0.6885 0.7679 0.8172			
5	70.0000	1.487	1.139	1.475	1.138	1.138	1.138	0.7016 0.7980 0.8263			
6	90.0000	1.482	1.149	1.482	1.141	1.141	1.141	Percent Design Speed = 99.9 Discharge Valve Setting= 30.0			
7	95.0000	1.534	1.153	1.482	1.141	1.141	1.141	Cor. Nozzle Weight Flow= 220.1			
											IE Check Flow/Noz.Flow = 1.0323 TE Check Flow/Noz.Flow = 0.9374
											Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

POINT NUMBER 13		BLADE ELEMENT PERFORMANCE RESULTS		STATOR BLADE ROW - NASA TASK IV		READING NUMBER 13		DATE 9/1/1970			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET XRS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL
1	25.09	22.80	39.47	-14.38		714.46	647.04	647.04	302.96		302.96
2	27.12	27.12	39.01	-16.31		713.30	657.55	657.55	276.88		276.88
3	32.18	31.79	40.86	-11.89		719.49	646.02	646.02	327.80		327.80
4	36.63	36.63	42.52	-7.62		809.50	650.44	650.44	409.27		409.27
5	42.12	42.12	42.76	-9.07		823.41	683.90	683.90	423.90		423.90
6				-5.59		845.09	653.91	653.91	486.10		486.10
7				-0.64			620.43	620.43	560.98		560.98
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	ANG TE	YURN ANGLE	EXIT XRS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL
1	1.14	1.39	-11.13	12.27	28.95	658.65	658.51	658.51	18.10		18.10
2	0.06	0.06	-10.10	11.49	21.41	739.18	738.92	738.92	17.89		17.89
3	0.75	0.75	-8.67	8.93	27.06	744.59	744.28	744.28	0.73		0.73
4	-1.58	-1.58	-8.75	9.60	31.33	761.84	760.91	760.91	11.33		11.33
5	0.42	0.42	-10.58	7.52	33.57	785.18	786.20	786.20	-21.85		-21.85
6	1.36	1.36	-12.36	11.00	36.20	874.18	874.46	874.46	6.46		6.46
7				13.72	40.75	852.91	849.92	849.92	20.24		20.24
RADIAL POSITION	ACTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR						
1	0.620	0.620	0.620	1.018	0.211						CHI
2	0.625	0.625	0.625	1.124	0.081						-0.188
3	0.630	0.630	0.630	1.163	0.104						-0.178
4	0.673	0.673	0.673	1.170	0.158						-0.184
5	0.715	0.715	0.715	1.150	0.171						-0.133
6	0.726	0.726	0.726	1.333	0.078						-0.173
7	0.743	0.743	0.743	1.370	0.110						-0.338
RADIAL POSITION	ACTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	LOSS COEFFICIENT	TOT PRESS LOSS P/AB	ABB EFFICIENCY	POI Y MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF			
1	0.573	0.573	0.573	0.211	0.069		1.3821				STAT PRESS
2	0.649	0.649	0.649	0.155	0.050		2.4937				-0.168
3	0.684	0.684	0.684	0.127	0.039		2.6220				-0.159
4	0.667	0.667	0.667	0.106	0.030		-0.2039				-0.163
5	0.677	0.677	0.677	0.132	0.035		-3.9174				-0.118
6	0.777	0.777	0.777	0.230	0.056		2.6079				-0.149
7	0.795	0.795	0.795	0.283	0.067		12.0236				-0.283
PERCENT DIVERGION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS						
1	5.0000	0.916	0.926	1.000	Total Pressure Ratio =	1.3555	0.9591	0.9444			
2	10.0000	0.971	1.002	1.000	Polytropic Efficiency =	0.7016	0.8792	---			
3	30.0000	0.969	1.000	1.000	Percent Design Speed =	99.9	Discharge Valve Setting =	30.0			
4	30.0000	0.954	0.993	1.000	Cor. Nozzle Weight Flow =	220.1					
5	70.0000	0.924	0.993	1.000							
6	90.0000	0.925	0.996	1.000							
7	95.0000	0.886	0.991	1.000							
OVERALL PERFORMANCE SUMMARY											
STAGE DATA STATOR DATA STATOR DATA											
FIXED INST. FIXED INST. TRAV. INST.											
TE Check Flow/Noz.Flow = 0.9540											
Assumed IE Flow Coeff. = 0.9550											

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER 14 READING NUMBER 14 DATE 9/ 1/1970									
RADIAL POSITION	REF INLET FLOW ANG	ARS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG MN CMBR LN	INCLD ANG SUCT SURF	INLET MRS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	RATIOS
1	64.14	0.24	60.90	37.54	0.84	681.65	1507.80	856.58	2.71	1354.65	0.834
2	61.50	0.78	59.61	37.54	-1.14	718.15	1500.83	715.57	9.78	1317.67	0.834
3	59.02	1.13	56.01	-0.99	-5.45	826.97	1442.20	826.79	16.34	1181.66	0.834
4	52.85	0.05	52.56	0.29	-5.55	810.38	1339.89	808.04	0.75	1066.43	0.834
5	50.41	-1.01	49.71	0.70	-6.09	755.11	1237.21	783.97	-13.78	947.99	0.834
6	50.70	-0.90	47.11	3.59	-4.07	619.57	1081.16	652.18	-10.19	796.77	0.834
7	50.75	-1.06	46.13	4.62	-3.28	647.75	993.47	615.61	-11.39	753.34	0.834
RADIAL POSITION	REL EXIT FLOW ANG	ARS EXIT FLOW ANG	CMBR LN TR ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT MRS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	DIFFUSION FACTOR
1	57.55	41.33	54.80	2.75	6.59	731.02	1021.94	547.73	481.55	861.37	0.440
2	56.10	38.87	54.42	1.68	5.40	737.22	1028.10	572.87	461.72	852.46	0.424
3	52.81	41.48	50.68	2.13	8.21	735.08	898.59	543.10	480.19	715.75	0.483
4	48.42	43.98	43.79	4.83	4.23	732.23	775.34	512.46	494.50	581.73	0.531
5	40.38	44.63	32.15	8.23	10.03	731.51	681.14	517.86	514.85	440.36	0.562
6	33.83	49.63	14.29	19.34	17.07	705.17	550.88	453.73	533.73	301.78	0.594
7	18.19	54.74	8.00	10.19	32.56	807.33	496.87	462.55	654.22	151.99	0.649
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLUBILITY COEFFICIENT	LOSS TOT PRESS LOSS PABAM	EFFICIENCY ADB	POLY MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF	CH1	
1	157.76	0.613	1.396	0.834	1.3240	0.036	0.7890	0.8046	0.343	0.458	
2	127.45	0.669	1.398	0.801	1.3690	0.035	0.7991	0.8141	0.370	0.485	
3	109.01	0.783	1.366	0.657	1.5000	0.021	0.8689	0.8783	0.379	0.577	
4	107.18	0.765	1.284	0.634	1.6840	0.022	0.8693	0.8744	0.352	0.621	
5	93.20	0.750	1.167	0.661	1.9060	0.010	0.9427	0.9465	0.613	0.653	
6	78.58	0.631	0.972	0.696	2.2470	0.020	0.8976	0.9040	0.607	0.667	
7	741.95	0.599	0.919	0.751	2.3390	0.022	0.9079	0.9138	0.594	0.683	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	TEMP RATIO	LOSS COEFFICIENT	FIXED TOT PRESS RATIO	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	ROTOR DATA FIXED INST. TRAV. INST.	
1	143.92	0.609	0.851	1.728	1.215	0.179	1.215	Total Pressure Ratio =	1.6406	1.6743	
2	114.19	0.620	0.865	1.742	1.188	0.171	1.188	Adiabatic Efficiency =	0.831	0.8546	
3	105.93	0.618	0.785	1.696	1.176	0.105	1.176	Polytropic Efficiency =	0.8434	0.8711	
4	107.23	0.609	0.663	1.641	1.157	0.112	1.157	Percent Design Speed =	100.1	Diaphragm Valve Setting= 9.0	
5	95.21	0.631	0.587	1.621	1.154	0.049	1.154	Cor. Nozzle Weight Flow =	213.4		
6	83.51	0.607	0.474	1.572	1.158	0.108	1.158	IE Check Flow/Noz.Flow =	1.0413	TE Check Flow/Noz.Flow = 0.9334	
7	806.21	0.697	0.429	1.897	1.897	0.108	1.897	Assumed IE Flow Coeff. =	0.9850	Assumed TE Flow Coeff. = 0.9500	

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
FIXED INST. FIXED INST. TRAV. INST.

1.6406 1.6674 1.6743
0.831 0.8615 0.8546
0.8434 0.8711 0.8648

Diaphragm Valve Setting= 9.0

IE Check Flow/Noz.Flow = 1.0413
Assumed IE Flow Coeff. = 0.9850
TE Check Flow/Noz.Flow = 0.9334
Assumed TE Flow Coeff. = 0.9500

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

090270		STATOR BLADE ROW - NASA YASK IV									
BLADE ELEMENT PERFORMANCE RESULTS		POINY NUMBER 14		READING NUMBER 14		DATE 09 13 1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET XRS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	41.16	36.27	39.47	17.69	734.48	582.99	587.37	582.99	483.39		
2	39.54	39.81	39.81	17.69	748.19	587.37	587.37	587.37	463.48		
3	41.52	40.86	39.80	17.69	753.92	581.18	581.18	581.18	479.72		
4	42.12	47.09	40.86	17.69	754.94	587.42	587.42	587.42	489.58		
5	47.09	42.22	42.22	17.69	707.91	478.29	478.29	478.29	503.97		
6	52.28	42.76	42.76	17.69	759.63	485.77	485.77	485.77	514.69		
7									626.11		
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANGLE	TURN ANGLE	EXIT XRS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	-0.01	2.10	-11.13	11.12	41.17	557.75	557.75	557.75	40.15		
2	2.22	1.77	-8.87	11.20	36.17	607.96	607.96	607.96	22.31		
3	1.77	1.16	-8.75	10.52	39.75	598.35	598.35	598.35	23.42		
4	1.16	2.67	-9.10	10.26	48.96	533.93	533.93	533.93	17.13		
5	2.67	-1.51	-10.58	13.25	46.42	504.25	504.25	504.25	23.43		
6											
7											
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS P/BAM	APB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF	CHI FACTOR	
1	5,000	0.612	0.630	1.009	0.164	0.854	0.6172	0.234	0.250	0.457	
2	10,000	0.630	0.644	1.034	0.115	0.837	0.8071	0.252	0.378	0.378	
3	30,000	0.644	0.635	1.028	0.037	0.811	0.8482	0.277	0.391	0.391	
4	50,000	0.635	0.652	1.002	0.028	0.808	0.8400	0.343	0.432	0.432	
5	70,000	0.652	0.610	0.955	0.051	0.814	0.8484	0.399	0.465	0.465	
6	90,000	0.610	0.640	1.050	0.074	0.816	0.9650	0.458	0.481	0.481	
7	95,000	0.640	0.640	1.030	0.100	0.824	0.6301	0.372	0.560	0.560	
RADIAL POSITION	PERCENT DIVERGENCE	TRAV TOT PRESS RATIO	EXIT REL TEMP RATIO	TRAV TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS P/BAM	APB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF	
1	5,000	0.960	0.977	0.977	1.000	0.164	0.854	0.6172	0.234	0.250	
2	10,000	0.982	0.995	0.995	1.000	0.115	0.837	0.8071	0.252	0.378	
3	30,000	0.986	0.998	0.998	1.000	0.037	0.811	0.8482	0.277	0.391	
4	50,000	0.981	0.997	0.997	1.000	0.028	0.808	0.8400	0.343	0.432	
5	70,000	0.978	0.993	0.993	1.000	0.051	0.814	0.8484	0.399	0.465	
6	90,000	0.998	0.993	0.993	1.000	0.074	0.816	0.9650	0.458	0.481	
7	95,000	0.951	0.980	0.980	1.000	0.100	0.824	0.6301	0.372	0.560	
OVERALL PERFORMANCE SUMMARY											
STAGE DATA STATOR DATA STATOR DATA											
FIXED INST. FIXED INST. ITAV. INST.											
Total Pressure Ratio = 1.6406 0.9839 0.9792											
Polytropic Efficiency = 0.8434 0.9682											
Percent Design Speed = 100.1 Discharge Valve Settings=9.0											
Cor. Nozzle Weight Flow= 213.4											
IE Check Flow/Noz.Flow = 0.9384 TE Check Flow/Noz.Flow = 0.9366											
Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9450											

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

590270

ROTOR BLADE ROW - NASA TASK IV													
BLADE ELEMENT PERFORMANCE RESULTS													
POINT NUMBER 15 HEADING NUMBER 15 DATE 9/ 1/1970													
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID SURF SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET ABS VELOCITY	INLET REL VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL
1	56.97	-0.49	60.60	5.97	3.27	596.17	1489.73	596.17	1489.73	-5.11	1365.23	-5.11	1365.23
2	64.91	-0.09	59.61	5.33	2.27	625.37	1470.68	625.37	1470.68	-0.93	1331.10	-0.93	1331.10
3	61.30	-1.53	56.01	5.24	0.83	666.97	1388.90	666.97	1388.90	-17.80	1218.25	-17.80	1218.25
4	59.55	-2.69	52.56	6.94	1.15	649.03	1276.64	649.03	1276.64	-30.41	1099.77	-30.41	1099.77
5	57.63	-3.43	49.71	7.92	1.13	626.43	1156.43	626.43	1156.43	-36.64	972.75	-36.64	972.75
6	56.78	-3.01	47.11	9.67	2.01	557.64	980.15	557.64	980.15	-28.07	816.23	-28.07	816.23
7	56.23	-2.26	46.13	10.10	2.120	537.53	933.63	537.53	933.63	-20.16	763.62	-20.16	763.62
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	57.58	48.68	54.90	2.78	8.99	722.90	926.65	722.90	926.65	564.46	781.31	564.46	781.31
2	52.07	45.90	54.42	0.65	9.84	769.23	934.43	769.23	934.43	551.57	765.30	551.57	765.30
3	53.62	49.98	50.68	2.94	7.68	731.42	793.01	731.42	793.01	560.02	638.36	560.02	638.36
4	47.76	53.15	43.79	3.97	11.80	738.42	658.75	738.42	658.75	590.82	487.60	590.82	487.60
5	41.15	56.22	32.15	9.00	16.48	727.51	537.66	727.51	537.66	604.05	353.12	604.05	353.12
6	29.38	57.03	14.29	14.09	28.40	742.41	462.61	742.41	462.61	619.97	217.24	619.97	217.24
7	12.12	57.85	8.00	4.12	44.11	846.16	467.57	846.16	467.57	711.76	96.10	711.76	96.10
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	WIPUSION FACTOR	CHI		
1	136.14	0.546	1.366	0.839	0.279	0.956	0.7235	0.7461	0.358	0.520	0.502		
2	133.17	0.575	1.352	0.858	0.295	0.953	0.8137	0.7721	0.407	0.501	0.518		
3	1200.45	0.617	1.264	0.705	0.177	0.935	0.8055	0.8195	0.478	0.567	0.567		
4	1069.36	0.599	1.179	0.689	0.191	0.938	0.8545	0.8647	0.531	0.629	0.618		
5	936.11	0.579	1.068	0.655	0.155	0.931	0.8470	0.8561	0.589	0.681	0.618		
6	788.19	0.512	0.907	0.752	0.188	0.937	0.8470	0.8561	0.681	0.683	0.638		
7	743.46	0.492	0.854	0.876	0.233	0.949	0.8294	0.8404	0.681	0.674	0.666		
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	EXIT REL MACH NO	FIXED TOI PRESS RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	OVERALL PERFORMANCE SUMMARY			
1	5.0000	1.800	0.754	1.863	0.269	1.269	1.269	1.269	0.751	STAGE DATA ROTOR DATA ROTOR DATA			
2	10.0000	1.891	0.771	1.896	1.219	1.219	1.219	1.219	0.751	FIXED INST. FIXED INST. TRAV. INST.			
3	30.0000	1.814	0.774	1.774	1.200	1.200	1.200	1.200	1.7541	1.7541 1.7541 1.7541			
4	50.0000	1.756	0.757	1.683	1.186	1.186	1.186	1.186	0.7455	0.7455 0.7938 0.8189			
5	70.0000	1.674	0.737	1.676	1.167	1.167	1.167	1.167	0.7638	0.7638 0.8094 0.8327			
6	90.0000	1.626	0.730	1.598	1.167	1.167	1.167	1.167	0.8094	0.8094 0.8094 0.8327			
7	97.0000	1.761	0.730	1.581	1.169	1.169	1.169	1.169	0.8094	0.8094 0.8094 0.8327			
										Percent Design Speed = 100.1			
										Cor. Nozzle Weight Flow = 184.9			
										Discharge Valve Setting = 4.6			
										LE Check Flow/Noz.Flow = 1.0886			
										TE Check Flow/Noz.Flow = 0.9811			
										Assumed LE Flow Coeff. = 0.9850			
										Assumed TE Flow Coeff. = 0.9500			

090270

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER	15	READING NUMBER	15	DATE	9/ 1/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHMR LN LE ANGLE	INCID ANG MN CMR LH	INCID ANG SUPT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	48.22	45.32	39.47	9.02	6.21	756.16	500.82	500.82	566.50	566.50	
2	45.32	48.17	39.11	9.16	9.16	778.51	547.39	547.39	553.57	553.57	
3	48.17	50.90	39.01	11.10	754.67	751.06	500.74	500.74	559.48	559.48	
4	50.90	53.87	40.86	13.01	734.19	754.67	475.32	475.32	584.99	584.99	
5	53.87	54.71	42.22	12.49	736.39	754.19	431.64	431.64	591.28	591.28	
6	54.71	55.49	42.76	12.73	834.30	736.39	423.14	423.14	597.75	597.75	
7	55.49		42.76			834.30	469.82	469.82	683.35	683.35	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHMR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	1.92	5.84	-11.13	15.02	46.60	626.47	21.01	626.47	21.01	626.47	
2	5.84	0.90	-10.10	15.94	39.48	676.66	673.11	676.66	673.11	676.66	
3	0.90	-2.54	-8.67	9.77	47.28	563.00	562.02	563.00	562.02	563.00	
4	-2.54	-0.96	-8.75	6.21	53.44	478.55	477.52	478.55	477.52	478.55	
5	-0.96	-1.80	-10.58	8.14	54.83	460.52	459.47	460.52	459.47	460.52	
6	-1.80	-4.21	-12.36	8.78	56.50	383.44	382.05	383.44	382.05	383.44	
7	-4.21			8.15	59.70	371.64	369.42	371.64	369.42	371.64	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	LOSS COEFFICIENT	TOI PRESS LOSS PARAM	ADBS EFFICIENCY	POLY EFFICIENCY	MOMEN RISE/ PRESS T RISE	STAT RISE COEFF
1	0.615	0.511	0.511	1.250	1.5250	0.170	0.056	0.4542	0.154	0.154	0.132
2	0.643	0.555	0.555	1.5440	1.5440	0.138	0.044	0.17049	0.154	0.154	0.168
3	0.632	0.467	0.467	1.6310	1.6310	0.140	0.043	0.5522	0.221	0.221	0.238
4	0.639	0.398	0.398	1.7420	1.7420	0.105	0.030	0.5959	0.327	0.327	0.350
5	0.626	0.384	0.384	1.8600	1.8600	0.146	0.039	0.7875	0.474	0.474	0.474
6	0.632	0.321	0.321	2.0510	2.0510	0.083	0.020	0.7812	0.539	0.539	0.563
7	0.718	0.311	0.311	2.0980	2.0980	0.054	0.013	0.15631	0.678	0.678	0.440
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	LOSS COEFFICIENT	ADBS EFFICIENCY	POLY EFFICIENCY	MOMEN RISE/ PRESS T RISE	STAT RISE COEFF
1	5.0000	0.959	0.978	0.971	1.000	1.000	0.170	0.4542	0.154	0.154	0.132
2	17.0000	0.970	0.994	0.967	1.000	1.000	0.138	0.17049	0.154	0.154	0.168
3	30.0000	0.948	0.996	0.966	1.000	1.000	0.140	0.5522	0.221	0.221	0.238
4	53.0000	0.935	0.990	0.974	1.000	1.000	0.105	0.5959	0.327	0.327	0.350
5	70.0000	0.966	0.997	0.966	1.000	1.000	0.146	0.7875	0.474	0.474	0.474
6	90.0000	0.958	0.991	0.980	1.000	1.000	0.083	0.7812	0.539	0.539	0.563
7	95.0000	0.886	0.978	0.983	1.000	1.000	0.054	0.15631	0.678	0.678	0.440

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INLET, FIXED INLET, TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6994 0.9688 0.9543
 Polytropic Efficiency = 0.7638 0.6437 0.8164
 Percent Design Speed = 100.1 Discharge Valve Setting= 4.6
 Cor. Nozzle Weight Flow= 184.9
 IE Check Flow/Noz.Flow = 0.9862 TE Check Flow/Noz.Flow = 1.0428
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350

TABLE XIII - TASK 1 STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

082670

ROTOR BLADE KON - NASA TASK IV

BLADE ELEMENT PERFORMANCE RESULTS
 POINT NUMBER 28 READING NUMBER 284 DATE 8/25/1970

RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG MN CHBR LN	INCLD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL
1	63.11	0.11	60.60	2.51	0.119	695.43	1528.03	690.10	1.32	1360.61
2	61.21	0.52	59.61	1.60	1.143	730.82	1513.47	728.23	6.57	1325.34
3	54.66	1.08	56.01	1.35	5.181	841.22	1454.07	841.05	15.90	1186.13
4	50.24	1.71	52.56	1.11	58.16	872.11	1360.67	859.21	26.01	1044.76
5	48.05	0.74	49.71	1.66	81.45	844.17	1253.77	832.93	10.78	926.56
6	47.21	0.79	47.11	0.10	57.56	751.53	1082.54	721.24	9.99	779.24
7	47.93	0.25	48.13	1.80	56.10	704.19	1022.61	659.34	2.92	741.52

RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN YE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
1	58.43	25.21	54.80	3.63	4.167	712.15	1228.11	642.24	302.31	1045.13
2	58.23	23.78	54.42	3.81	2.99	703.05	1219.62	641.64	282.69	1035.92
3	55.12	28.55	50.88	4.94	50.46	690.52	1060.58	606.38	329.96	870.00
4	47.85	34.88	43.79	4.06	2.39	730.66	893.18	599.31	417.73	662.12
5	40.05	34.00	32.15	7.90	7.99	764.81	828.06	632.57	426.66	531.77
6	28.40	39.45	16.29	14.11	18.81	803.63	707.45	614.78	505.84	332.47
7	20.60	45.10	8.00	12.60	27.53	840.26	638.97	586.42	588.50	220.42

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	LOSS COEFFICIENT	LOSS TOT	TOT PRESS LOSS PARAM	EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF
1	1361.92	0.647	1.422	0.931	1.330	0.156	0.031	0.7114	0.7236	0.270	0.289
2	1331.92	0.684	1.416	0.881	1.369	0.103	0.020	0.6077	0.6166	0.261	0.313
3	1202.03	0.799	1.381	0.721	1.500	0.119	0.023	0.7916	0.8014	0.342	0.422
4	1070.76	0.832	1.299	0.689	1.680	0.163	0.033	0.7480	0.7600	0.429	0.498
5	937.34	0.803	1.192	0.759	1.900	0.088	0.018	0.6696	0.6762	0.427	0.540
6	789.22	0.705	1.016	0.852	2.217	0.137	0.027	0.8493	0.8575	0.453	0.521
7	744.44	0.657	0.954	0.876	2.339	0.145	0.029	0.8959	0.8638	0.503	0.499

RADIAL POSITION	PERCENT IMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO
1	5.0000	1.408	1.141	1.357	1.128
2	10.0000	1.401	1.124	1.356	1.124
3	30.0000	1.413	1.126	1.404	1.129
4	50.0000	1.446	1.145	1.412	1.139
5	70.0000	1.492	1.131	1.443	1.127
6	90.0000	1.496	1.141	1.481	1.140
7	95.0000	1.541	1.151	1.492	1.142

DIFFUSION FACTOR
 0.270 0.261 0.342 0.429 0.427 0.453 0.503

CH1
 0.289 0.313 0.422 0.498 0.540 0.521 0.499

OVERALL PERFORMANCE SUMMARY
 STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.3587 1.4202 1.4466
 Adiabatic Efficiency = 0.6964 0.8032 0.8209
 Polytropic Efficiency = 0.7093 0.8117 0.8357
 Percent Design Speed = 100.3 Discharge Valve Setting= 30.0
 Cor. Nozzle Weight Flow= 280.9

IE Check Flow/Noz.Flow = 1.0267 TE Check Flow/Noz.Flow = 0.9461
 Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

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STATOR BLADE ROW - NASA TASK IV

POINT NUMBER 28		READING NUMBER 284		DATE 8/25/1970						
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCIP ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL
1		25.06	39.47	-14.41		649.02		649.02	303.40	
2		23.27	39.11	-15.84		718.24		718.24	283.71	
3		26.76	39.01	-12.25		732.17		732.17	329.64	
4		32.34	39.80	9.71		774.79		774.79	413.57	
5		31.15	40.86	9.71		821.43		821.43	417.64	
6		36.64	42.22	9.58		825.91		825.91	487.71	
7		42.34	42.76	9.42		847.49		847.49	565.02	
RADIAL POSITION	RFL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN WE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
1		0.02	-11.13	11.15	25.03	657.131		657.131	0.26	
2		0.06	-10.10	10.16	23.21	739.05		739.05	0.71	
3		0.18	-8.87	9.05	26.59	753.23		752.92	2.33	
4		0.78	-8.75	9.53	31.56	763.30		763.30	10.44	
5		-1.08	-9.10	8.02	32.23	795.31		793.46	-15.02	
6		0.41	-10.58	10.99	36.23	883.01		880.27	6.33	
7		1.98	-12.36	14.34	40.36	848.12		844.89	29.16	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	AXIAL VEL RATIO	INLET REL MACH NO	DIFFUSION FACTOR	CHI				
1		0.623	1.013	1.120	0.221	-0.195				
2		0.630	1.120	1.152	0.098	-0.177				
3		0.643	1.152	1.169	0.108	-0.189				
4		0.677	1.169	1.148	0.162	-0.155				
5		0.719	1.148	1.342	0.161	-0.192				
6		0.728	1.342	1.363	0.070	-0.366				
7		0.746	1.363		0.147	-0.350				
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	FIXED TOT PRESS RATIO	EXIT REL MACH NO	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF				
1		0.572	1.5230	0.929	-1.36601	-0.174				
2		0.650	1.5440	0.931	2.9025	-0.158				
3		0.662	1.6310	0.929	3.3536	-0.168				
4		0.670	1.7420	0.914	-8.4108	-0.136				
5		0.703	1.8000	0.953	-5.1781	-0.165				
6		0.785	2.0510	0.943	2.15566	-0.166				
7		0.750	2.0980	0.929	34.6443	-0.306				
RADIAL POSITION	PERCENT EXCURSION	TRAV TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA STATOR DATA					
1	5.0000	0.911	1.000	FIXED INST. FINED INST. TRAV. INST.						
2	10.0000	0.968	1.000	Total Pressure Ratio =	1.3587 0.9567 0.9383					
3	30.0000	0.962	1.001	Polytropic Efficiency =	0.7093 0.8738					
4	50.0000	0.945	1.000	Percent Design Speed =	100.3					
5	70.0000	0.920	1.000	Cor. Nozzle Weight Flow =	220.9					
6	90.0000	0.919	1.000							
7	95.0000	0.874	1.000							
OVERALL PERFORMANCE SUMMARY										
IE Check Flow/Noz.Flow = 0.9510										
Assumed IE Flow Coeff. = 0.9550										
TE Check Flow/Noz.Flow = 0.9546										
Assumed TE Flow Coeff. = 0.9580										

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER 29 READING NUMBER 285 DATE 8/25/1970									
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SU4F	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	64.16	0.93	3.56	59.61	20.73	650.27	1500.70	653.33	10.59	1348.66	
2	61.91	1.19	2.30	56.01	21.47	704.28	1491.37	701.66	14.61	1314.69	
3	55.00	1.73	1.01	51.47	23.16	823.16	1434.34	822.76	24.79	1174.88	
4	52.63	0.56	0.07	51.77	26.17	812.44	1356.05	810.03	7.97	1060.70	
5	49.89	-0.03	0.18	26.61	26.17	799.47	1250.85	788.40	-0.336	935.86	
6	49.95	0.11	2.84	41.82	24.82	688.72	1045.31	661.03	1.33	786.35	
7	50.02	-0.40	3.89	24.01	24.01	650.97	997.54	627.29	55.06	748.04	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN LE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	59.15	40.32	54.80	4.35	51.01	700.71	1040.70	533.04	452.33	892.56	
2	56.60	38.03	54.92	4.18	31.31	691.57	1044.55	543.67	425.17	890.84	
3	54.07	39.46	50.58	3.59	0.93	704.29	926.44	543.62	447.55	750.105	
4	48.86	41.91	45.79	5.07	3.77	709.15	802.18	527.65	473.63	604.109	
5	40.84	43.50	32.15	8.69	9.65	728.58	698.59	527.51	500.64	455.90	
6	34.27	48.54	14.29	19.98	15.68	701.75	584.37	461.44	522.28	314.39	
7	19.95	53.95	6.00	11.95	20.06	796.08	504.40	464.78	638.59	168.74	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ FACTOR	STAT PRESS RISE COEFF	
1	1359.25	0.609	1.388	0.816	0.167	0.032	0.7922	0.8067	0.416	0.342	
2	1329.30	0.655	1.387	0.775	0.166	0.032	0.7934	0.8078	0.400	0.366	
3	1199.67	0.778	1.356	0.661	0.133	0.020	0.8694	0.8785	0.452	0.486	
4	1068.66	0.767	1.261	0.651	0.084	0.016	0.8963	0.9032	0.503	0.557	
5	935.50	0.753	1.150	0.669	0.054	0.011	0.9362	0.9403	0.540	0.628	
6	787.67	0.640	0.971	0.698	0.109	0.020	0.8968	0.9031	0.575	0.718	
7	742.98	0.611	0.924	0.741	0.060	0.012	0.9483	0.9517	0.638	0.698	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	LOSS COEFFICIENT	LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ FACTOR	STAT PRESS RISE COEFF	
1	1344.89	0.586	0.870	1.3340	0.167	0.032	0.7922	0.8067	0.416	0.342	
2	1316.01	0.587	0.887	1.3690	0.166	0.032	0.7934	0.8078	0.400	0.366	
3	1197.60	0.600	0.790	1.5080	0.133	0.020	0.8694	0.8785	0.452	0.486	
4	1077.72	0.607	0.687	1.6880	0.084	0.016	0.8963	0.9032	0.503	0.557	
5	956.54	0.629	0.603	1.9060	0.054	0.011	0.9362	0.9403	0.540	0.628	
6	836.67	0.604	0.486	2.2170	0.109	0.020	0.8968	0.9031	0.575	0.718	
7	807.33	0.687	0.435	2.3390	0.060	0.012	0.9483	0.9517	0.638	0.698	
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	STAGE DATA ROTOR DATA	FIXED INST. FIXED INST. TRAV. INST.	ROTOR DATA	
1	5.0000	1.696	1.220	1.672	1.200	Total Pressure Ratio =	1.6201	1.6420	0.8454	1.6558	
2	10.0000	1.682	1.182	1.678	1.199	Adiabatic Efficiency =	0.8555	0.8705	0.8555	0.8889	
3	30.0000	1.683	1.177	1.633	1.168	Polytropic Efficiency =	100.1	Discharge Valve Setting=	9.0	0.8965	
4	50.0000	1.657	1.159	1.605	1.155	Percent Design Speed =	100.1	Discharge Valve Setting=	9.0		
5	70.0000	1.628	1.157	1.570	1.154	Cor. Nozzle Weight Flow=	214.5				
6	90.0000	1.551	1.134	1.518	1.135						
7	95.0000	1.666	1.174	1.618	1.155						

082670 TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE KJW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS								
POINT NUMBER 29		READING NUMBER 285	DATE 8/25/1970							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG MN CHBR LN	INCLD ANG SUCY SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	37.45	40.45	39.47	0.68	704.04	701.80	538.12	557.14	453.97	426.72
2	37.45	39.11	39.11	-1.66	734.08	734.08	581.78	581.78	447.12	447.12
3	39.44	39.44	39.80	-0.36	754.02	754.02	570.10	570.10	468.92	468.92
4	40.77	40.77	40.86	-0.09	705.77	705.77	568.28	568.28	490.06	490.06
5	45.98	45.98	42.22	3.76	789.40	789.40	486.54	486.54	503.56	503.56
6	51.48	51.48	48.76	2.72			488.10	488.10	613.11	613.11
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN LE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	-1.35	-1.35	-11.13	9.78	41.51	521.90	521.75	521.75	-12.34	-12.34
2	0.34	0.34	-10.10	10.44	37.11	564.40	564.36	564.36	3.30	3.30
3	1.59	1.59	-8.87	10.46	35.95	599.41	598.93	598.93	16.62	16.62
4	1.17	1.17	-8.75	9.92	38.27	559.64	558.90	558.90	11.40	11.40
5	0.82	0.82	-9.10	9.12	40.75	533.27	532.13	532.13	0.20	0.20
6	1.71	1.71	-10.58	12.29	44.27	519.12	517.29	517.29	15.48	15.48
7	-1.13	-1.13	-12.36	11.23	52.61	515.69	513.93	513.93	-10.15	-10.15
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS	AD8 EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR
1	0.589	0.435	0.472	0.970	0.145	0.048	0.5906	0.7708	0.1240	0.476
2	0.597	0.428	0.506	1.013	0.088	0.028	0.7708	0.8778	0.258	0.391
3	0.628	0.474	0.474	1.029	0.034	0.010	0.8286	0.8286	0.272	0.420
4	0.635	0.454	0.441	0.980	0.024	0.007	0.8103	0.8103	0.327	0.349
5	0.652	0.441	0.438	0.936	0.044	0.012	0.9855	0.9855	0.375	0.464
6	0.608	0.438	0.438	1.063	0.070	0.017	0.6280	0.6280	0.426	0.430
7	0.681	0.438	0.438	1.053	0.106	0.025	0.6280	0.6280	0.448	0.531
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY				
1	5.0000	0.958	0.977	0.969	1.000	STAGE DATA STATOR DATA STATOR DATA				
2	10.0000	0.980	1.008	0.981	1.000	FIXED INST. FIXED INST. TRAV. INST.				
3	30.0000	0.969	0.999	0.992	1.000	Tolal Pressure Ratio = 1.6201 0.9867 0.9786				
4	50.0000	0.980	0.993	0.994	1.000	Polytropic Efficiency = 0.8555 0.9730 0.9712				
5	70.0000	0.973	0.993	0.989	1.000	Percent Design Speed = 100.1 Discharge Valve Setting= 9.0				
6	90.0000	0.998	0.993	0.985	1.000	Cor. Nozzle Weight Flow= 214.5				
7	95.0000	0.936	0.979	0.971	1.000	LE Check Flow/Noz. Flow = 0.9377 TE Check Flow/Noz. Flow = 0.9180				
						Assumed LE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350				

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV

ROTOR BLADE ROW - NASA TASK IV											
BLADE ELEMENT PERFORMANCE RESULTS											
POINT NUMBER 30 READING NUMBER 286 DATE 8/25/1970											
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN	INCID ANG LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	68.42	0.82	60.60	7.82	5.12	4.78	538.78	1454.85	534.60	7.64	1351.43
2	67.42	-0.45	59.61	7.81	4.78	4.78	556.61	1445.00	-4.38	-4.38	1353.51
3	62.04	-0.82	56.01	6.03	1.57	1.57	641.56	1368.33	641.48	-9.13	1208.64
4	60.04	-2.04	52.56	7.48	1.64	1.64	631.00	1260.06	628.79	-22.39	1090.91
5	58.05	-2.37	49.71	8.34	1.55	1.55	607.69	1136.05	598.77	-24.80	900.17
6	57.19	-1.87	47.11	10.08	2.42	2.42	540.58	969.07	516.60	-24.80	804.46
7	56.79	-0.79	46.13	10.66	2.76	2.76	516.43	910.30	490.83	-6.78	749.66

RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN LE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	55.81	52.56	54.80	1.01	12.61	797.36	862.48	484.03	632.16	712.55
2	54.31	47.77	54.42	-0.11	13.10	786.15	905.43	527.62	581.25	734.59
3	53.44	50.20	50.68	2.76	8.61	734.15	788.78	469.84	583.98	633.46
4	47.84	52.39	43.79	4.05	12.20	734.99	668.37	448.53	582.18	495.41
5	41.64	55.91	32.15	9.49	16.42	721.85	541.73	404.11	597.19	359.23
6	30.01	56.16	14.29	15.72	27.18	729.56	472.42	404.29	603.01	233.54
7	13.69	57.73	8.00	5.69	43.10	832.85	464.46	441.79	699.63	107.59

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	SOLIDITY	FIXED TOT PRESS RATIO	TEMP RATIO	EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS COEFF
1	1359.07	0.490	1.324	0.905	0.293	1.3340	1.296	1.269	0.7174	0.7406	0.370
2	1329.13	0.507	1.317	0.951	0.284	1.3690	1.854	1.849	0.7257	0.7482	0.378
3	1199.51	0.592	1.162	0.732	0.190	1.5080	1.762	1.762	0.8128	0.8271	0.467
4	1068.52	0.582	1.162	0.732	0.177	1.6840	1.678	1.678	0.8197	0.8324	0.530
5	935.38	0.560	1.047	0.675	0.163	1.9060	1.628	1.628	0.8542	0.8542	0.597
6	787.57	0.495	0.887	0.780	0.179	2.1270	1.591	1.591	0.8673	0.8673	0.711
7	742.88	0.472	0.832	0.900	0.207	2.3390	1.595	1.595	0.8539	0.8632	0.783

RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	TEMP RATIO	PERCENT EXCURSION
1	1344.71	0.649	1.702	1.296	1.269	5.0000
2	1315.84	0.652	1.751	1.854	1.849	10.0000
3	1197.44	0.617	1.663	1.762	1.762	30.0000
4	1077.58	0.622	1.565	1.678	1.678	50.0000
5	956.42	0.616	1.462	1.628	1.628	70.0000
6	836.56	0.627	1.406	1.591	1.591	90.0000
7	807.23	0.718	1.401	1.595	1.595	95.0000

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST. FIXED INST.	FIXED INST.	TRAV. INST.
1.6812	1.7325	1.7738
0.7435	0.7001	0.8363
0.7010	0.8057	0.8397
Discharge Valve Setting= 4.0		
Percent Design Speed = 100.1		
Cor. Nozzle Weight Flow= 180.7		

PERFORMANCE PARAMETERS
Total Pressure Ratio =
Adiabatic Efficiency =
Polytropic Efficiency =
Percent Design Speed =
Cor. Nozzle Weight Flow =

OVERALL PERFORMANCE SUMMARY
IE Check Flow/Noz.Flow = 1.0763
Assumed IE Flow Coeff. = 0.9350
TE Check Flow/Noz.Flow = 0.9988
Assumed TE Flow Coeff. = 0.9900

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE MOW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 30		READING NUMBER 286		DATE 8/25/1970		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG	INCLD ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	52.41	47.19	39.47	12.94	800.70	488.46	634.44	488.46	634.44	634.44
2	46.40	39.01	39.11	9.59	795.16	500.18	563.44	500.18	563.44	563.44
3	50.12	40.86	39.80	10.32	752.167	481.66	578.38	481.66	578.38	578.38
4	53.56	42.22	40.86	12.70	728.82	431.65	584.57	431.65	584.57	584.57
5	53.80	42.22	42.22	11.58	724.57	425.44	581.40	425.44	581.40	581.40
6	55.38	42.76	42.76	12.62	821.23	463.78	671.71	463.78	671.71	671.71
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	EXIT ABS VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	2.67	4.48	-11.13	13.80	617.11	616.43	28.77	616.43	28.77	28.77
2	4.48	-0.09	-10.10	14.58	632.77	630.80	49.44	630.80	49.44	49.44
3	-3.00	7.39	-8.87	8.78	551.94	551.71	-0.85	551.71	-0.85	-0.85
4	-1.75	6.79	-8.75	5.75	472.88	471.71	-24.74	471.71	-24.74	-24.74
5	6.79	-10.58	-9.10	7.39	423.19	422.09	46.27	422.09	46.27	46.27
6	-1.80	10.56	-12.36	10.56	392.147	388.53	-11.85	388.53	-11.85	-11.85
7					377.104	375.64		375.64		
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PARAM	EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	
1	0.652	0.503	0.518	1.5230	0.155	0.051	0.4991	0.174	0.169	
2	0.660	0.458	0.458	1.5440	0.141	0.045	0.15754	0.191	0.208	
3	0.635	0.394	0.394	1.6310	0.138	0.042	0.5999	0.255	0.274	
4	0.622	0.354	0.354	1.7420	0.102	0.029	0.6140	0.341	0.364	
5	0.622	0.329	0.329	1.8800	0.093	0.025	0.7248	0.451	0.474	
6	0.622	0.316	0.316	2.0510	0.086	0.021	0.7734	0.518	0.541	
7	0.707	0.316	0.316	2.0980	0.055	0.013	0.5624	0.736	0.433	
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	
1	5.0000	0.945	0.945	0.961	1.000	1.000	1.000	0.174	0.169	
2	10.0000	0.954	0.954	0.964	1.000	1.000	1.000	0.191	0.208	
3	30.0000	0.950	0.950	0.967	1.000	1.000	1.000	0.255	0.274	
4	50.0000	0.938	0.938	0.975	1.000	1.000	1.000	0.341	0.364	
5	70.0000	0.953	0.953	0.978	1.000	1.000	1.000	0.451	0.474	
6	90.0000	0.959	0.959	0.980	1.000	1.000	1.000	0.518	0.541	
7	95.0000	0.890	0.890	0.983	1.000	1.000	1.000	0.518	0.541	

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 0.9704 0.9409 0.9409
 Polytropic Efficiency = 0.7616 0.9453 0.7046
 Percent Design Speed = 100.1 Discharge Valve Setting = 4.0
 Cor. Nozzle Weight Flow = 180.7
 IE Check Flow/Noz.Flow = 1.0040 TE Check Flow/Noz.Flow = 1.0337
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV											
		BLADE ELEMENT PERFORMANCE RESULTS											
		POINT NUMBER 14					DATE 9/1/1970						
		ROTOR BLADE ROW - NASA TASK IV											
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL		
1		62.76	-0.32	60.60	2.16	-0.54	1533.46	700.85	700.85	-3.94	1361.13		
2		61.17	-0.33	59.61	1.56	-1.47	1521.15	732.98	732.98	4.20	1331.49		
3		54.02	0.92	56.01	-1.99	-6.45	1463.11	859.54	859.54	13.86	1183.99		
4		50.17	1.54	52.56	-2.39	-8.73	1360.58	870.40	870.40	23.39	1043.85		
5		47.57	0.48	49.71	-2.14	-8.93	859.22	847.29	847.29	7.18	926.09		
6		47.34	0.94	47.11	0.23	-7.43	1074.08	713.97	713.97	11.69	974.79		
7		47.70	0.25	46.13	1.57	-6.33	1022.98	672.43	672.43	2.92	738.94		
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANG TE	REL YURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL		
1		59.91	24.06	54.80	5.41	2.85	679.35	1234.25	618.27	276.05	1066.81		
2		59.10	23.00	54.42	4.68	2.07	683.14	1222.16	623.11	266.23	1047.79		
3		59.32	24.17	50.68	4.64	-1.30	684.98	1061.09	603.68	323.30	872.49		
4		48.09	33.73	43.79	4.29	2.09	726.40	904.21	603.98	403.32	672.77		
5		37.61	34.43	32.15	7.46	7.96	767.09	821.01	631.21	432.71	522.38		
6		28.10	39.74	14.29	13.81	19.24	803.12	702.14	613.86	508.68	326.73		
7		20.40	45.68	8.00	12.40	27.50	835.72	626.39	573.43	511.34	234.77		
RADIAL POSITION		ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	LOSS	TOT PRESS LOSS PARAB	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAY PRESS COEFF
1		137.19	0.657	1.428	0.882	0.167	0.031	0.167	0.031	0.6823	0.6950	0.193	
2		132.29	0.688	1.423	0.856	0.097	0.018	0.097	0.018	0.8107	0.8191	0.212	
3		1197.86	0.819	1.393	0.702	0.111	0.021	0.111	0.021	0.8009	0.8009	0.329	
4		1067.05	0.833	1.298	0.694	0.174	0.034	0.174	0.034	0.7348	0.7474	0.413	
5		934.09	0.818	1.203	0.745	0.057	0.020	0.057	0.020	0.8538	0.8610	0.489	
6		785.48	0.697	1.006	0.857	0.133	0.026	0.133	0.026	0.8545	0.8623	0.580	
7		741.86	0.660	0.954	0.859	0.172	0.034	0.172	0.034	0.8306	0.8397	0.543	
RADIAL POSITION		ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	IMMERSION PERCENT	PERCENT IMMERSION	STAGE DATA ROTOR DATA	FIXED INST. TRAV. INST.	ROTOR DATA	
1		142.85	0.591	1.074	1.3340	1.3377	1.118	5.0000	1.3377	0.6950	1.4117	1.4320	
2		131.92	0.598	1.069	1.3690	1.403	1.127	10.0000	1.403	0.8191	0.7955	0.8144	
3		1195.79	0.598	0.926	1.5080	1.411	1.141	30.0000	1.411	0.8009	0.7090	0.8053	
4		1075.09	0.631	0.786	1.6840	1.428	1.126	50.0000	1.428	0.7348	0.7090	0.8053	
5		955.10	0.673	0.720	1.9060	1.433	1.146	70.0000	1.433	0.6610	0.7090	0.8053	
6		835.40	0.706	0.617	2.2170	1.433	1.139	90.0000	1.433	0.623	0.7090	0.8053	
7		805.11	0.733	0.551	2.3390	1.484	1.154	95.0000	1.484	0.634	0.7090	0.8053	
OVERALL PERFORMANCE SUMMARY													
STAGE DATA ROTOR DATA													
FIXED INST. TRAV. INST.													
PERFORMANCE PARAMETERS													
Total Pressure Ratio = 1.3547													
Adiabatic Efficiency = 0.6952													
Polytropic Efficiency = 0.7090													
Percent Design Speed = 100.0													
Cor. Nozzle Weight Flow = 220.6													
Discharge Valve Setting = 30.0													
IE Check Flow/Noz.Flow = 1.0311													
Assumed LE Flow Coeff. = 0.9850													
TE Check Flow/Noz.Flow = 0.9345													
Assumed TE Flow Coeff. = 0.9500													

099270 **TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)**

		STATOR BLADE ROW - NASA TASK IV															
		BLADE ELEMENT PERFORMANCE RESULTS												DATE 97 17 1970			
		POINT NUMBER 14 READING NUMBER 38															
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET RBL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET RBL TANG VEL	INLET AX TANG VEL	EXIT ABS VELOCITY	EXIT RBL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT RBL TANG VEL	EXIT AX TANG VEL
1	23.92	26.41	39.47	-15.55	22.58	683.35	624.57	624.57	277.04	277.04	277.04	650.39	650.39	650.39	15.19	15.19	15.19
2	22.22	26.41	39.01	-16.59	23.50	723.46	723.31	723.31	322.98	322.98	322.98	752.09	752.09	752.09	14.04	14.04	14.04
3	26.41	31.23	39.80	-12.60	25.34	771.98	765.88	765.88	423.57	423.57	423.57	786.84	786.84	786.84	6.18	6.18	6.18
4	31.23	31.23	40.86	-8.57	30.52	813.94	813.94	813.94	490.45	490.45	490.45	857.03	857.03	857.03	15.19	15.19	15.19
5	31.23	36.93	42.22	-9.29	33.19	824.81	824.81	824.81	567.74	567.74	567.74						
6	42.94	42.94	42.22	-5.29	36.53	841.78	841.78	841.78									
7	42.94	42.94	42.76	0.18	41.93												
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT RBL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT RBL TANG VEL	EXIT AX TANG VEL	DIFFUSION CH1					
1	1.34	-0.98	-11.13	12.47	22.58	650.39	650.39	650.39	15.19	15.19	15.19	0.174	0.174	0.174	0.214	0.214	0.214
2	1.07	0.91	-10.10	9.42	23.50	723.46	723.31	723.31	12.38	12.38	12.38	0.093	0.093	0.093	0.184	0.184	0.184
3	0.91	0.71	-8.75	9.46	25.34	752.09	752.09	752.09	9.44	9.44	9.44	0.094	0.094	0.094	0.182	0.182	0.182
4	-1.62	0.41	-9.10	7.48	30.52	786.84	786.84	786.84	22.23	22.23	22.23	0.151	0.151	0.151	0.132	0.132	0.132
5	0.41	1.02	-10.58	10.99	33.19	877.07	877.07	877.07	6.18	6.18	6.18	0.175	0.175	0.175	0.171	0.171	0.171
6	1.02	1.02	-12.36	13.38	41.93	857.03	857.03	857.03				0.177	0.177	0.177	0.134	0.134	0.134
7	1.02	1.02	-12.36	13.38	41.93	857.03	857.03	857.03				0.132	0.132	0.132	0.132	0.132	0.132
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PARAM	APP EFFICIENCY	POLY MOMEN RISE/ RISE COEFF	STATOR DATA								
1	0.595	0.567	0.567	1.844	0.237	0.078	0.4888	2.4888	FIXED INST. FIXED INST. TRAV. INST.								
2	0.611	0.637	0.637	1.822	0.148	0.148	2.3229	2.3229	1.3547 0.9596 0.9462								
3	0.637	0.662	0.662	1.756	0.125	0.638	2.4592	2.4592	0.7090 0.8804								
4	0.674	0.671	0.671	1.663	0.106	0.630	17.3709	17.3709	Discharge Valve Setting= 30.0								
5	0.718	0.698	0.698	1.442	0.126	0.634	31.4026	31.4026	100.0								
6	0.727	0.780	0.780	1.340	0.230	0.656	2.5605	2.5605	TE Check Flow/Noz.Flow = 0.9394								
7	0.738	0.761	0.761	1.405	0.283	0.667	6.5419	6.5419	Assumed IE Flow Coeff. = 0.9550								
RADIAL POSITION	PERCENT IMMERSION	YRAT TOT PRESS RATIO	YRAT TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY											
1	5.0000	0.928	0.993	0.648	1.000	STATOR DATA											
2	10.0000	0.973	0.996	0.967	1.000	PERFORMANCE PARAMETERS											
3	30.0000	0.970	0.996	0.970	1.000	Total Pressure Ratio =											
4	50.0000	0.956	0.994	0.972	1.000	Polytropic Efficiency =											
5	70.0000	0.923	0.990	0.962	1.000	Percent Design Speed = 100.0											
6	90.0000	0.925	0.996	0.931	1.000	Cor. Nozzle Weight Flow=											
7	95.0000	0.889	0.989	0.912	1.000	IE Check Flow/Noz.Flow = 0.9394											
						Assumed IE Flow Coeff. = 0.9550											

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS					DATE 9/ 1/1970				
		POINT NUMBER 15 READING NUMBER 339									
RADIAL POSITION		REL INLET FLOW ANG	ARS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INLET SURF SUCT ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		63.74	-0.15	60.80	3.14	0.44	675.71	1517.59	670.53	-1.80	1358.86
2		61.40	-0.19	59.61	1.79	-1.24	727.48	1515.58	724.92	-2.41	1329.58
3		59.11	0.70	56.01	-0.90	-9.36	828.17	1447.78	828.09	10.19	1187.56
4		52.77	0.02	52.56	0.72	-5.63	812.85	1341.03	810.51	0.34	1066.60
5		50.48	-1.17	49.71	0.77	-6.02	794.98	1238.67	783.80	-16.04	950.04
6		50.62	-0.60	47.11	3.51	-4.15	678.51	1043.85	651.21	-6.87	793.28
7		50.52	-0.49	46.13	4.39	-3.51	647.35	988.50	615.29	-5.28	747.06
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANGLE TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		60.28	39.79	54.90	5.46	3.45	677.60	1048.91	549.44	432.64	910.08
2		53.33	38.04	54.42	3.83	3.15	697.00	1041.99	547.84	428.65	885.25
3		48.31	40.93	50.68	2.65	1.78	716.10	905.02	540.96	469.01	726.67
4		40.29	43.52	43.79	4.52	4.46	716.11	780.71	519.20	493.06	582.93
5		33.02	44.07	32.15	8.14	10.19	733.32	690.89	525.95	509.14	445.87
6		19.32	46.41	14.29	18.73	17.60	712.46	561.91	465.99	532.50	302.83
7			55.08	8.00	11.32	31.21	795.71	488.81	452.14	647.56	158.47
RADIAL POSITION		WTOR SPD AT INLET	INLET MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	CHI FACTOR
1		157.05	0.626	1.407	0.775	0.178	0.033	0.7788	0.7942	0.338	0.454
2		137.15	0.678	0.756	0.756	0.147	0.028	0.8135	0.8267	0.362	0.479
3		117.74	0.783	0.653	0.653	0.095	0.019	0.8802	0.8888	0.479	0.577
4		106.94	0.767	0.641	0.641	0.104	0.021	0.8728	0.8814	0.553	0.622
5		93.00	0.749	0.671	0.671	0.048	0.010	0.9426	0.9463	0.617	0.657
6		78.41	0.630	0.969	0.716	0.107	0.020	0.8990	0.9052	0.703	0.671
7		741.79	0.599	0.915	0.735	0.105	0.021	0.9108	0.9165	0.760	0.691
RADIAL POSITION		WTOR SPD AT EXIT	EXIT MACH NO	EXIT REL MACH NO	SOLIDITY PRESS RATIO	FIXED TOT TEMP RATIO	TRAV TOT PRESS RATIO	PERCENT DIMENSION	OVERALL PERFORMANCE SUMMARY		
1		142.73	0.567	0.878	1.3340	1.203	1.213	5.0000	STAGE DATA ROTOR DATA		
2		131.20	0.591	0.884	1.3690	1.197	1.183	10.0000	FIXED INST. FIXED INST. TRAV. INST.		
3		115.67	0.610	0.771	1.5090	1.186	1.163	30.0000	1.6296 1.6502 1.6612		
4		1075.99	0.612	0.667	1.6840	1.173	1.174	50.0000	0.8403 0.8696 0.8783		
5		953.91	0.595	0.595	1.9060	1.155	1.163	70.0000	0.8465 0.8784 0.8867		
6		835.32	0.613	0.484	2.2170	1.141	1.141	90.0000	100.1 Discharge Valve Setting= 9.0		
7		695.03	0.657	0.422	2.3390	1.175	1.175	95.0000	Cor. Nozzle Weight Flow= 214.7		
RADIAL POSITION		PERCENT DIMENSION	TRAV TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	LE Check Flow/Noz.Flow = 1.0367 TE Check Flow/Noz.Flow = 0.9249					
1		5.0000	1.669	1.213	Total Pressure Ratio =	Assumed IE Flow Coeff. = 0.9650 Assumed TE Flow Coeff. = 0.9600					
2		10.0000	1.586	1.183	Adiabatic Efficiency =						
3		30.0000	1.665	1.174	Polytropic Efficiency =						
4		50.0000	1.639	1.163	Percent Design Speed =						
5		70.0000	1.541	1.141	Cor. Nozzle Weight Flow=						
6		90.0000	1.540	1.141							
7		95.0000	1.664	1.175							

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TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW		NASA TASK IV	
BLADE ELEMENT PERFORMANCE RESULTS			
POINT NUMBER 15		DATE 9/17/1970	
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE
1	39.63	39.47	0.16
2	37.46	39.11	-1.65
3	36.99	39.01	-0.02
4	41.05	39.80	1.25
5	41.34	40.86	0.48
6	46.25	42.22	4.03
7	52.64	42.76	9.88
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE
1	-0.49	-11.13	10.64
2	0.80	-10.10	10.90
3	3.65	-8.87	12.52
4	1.96	58.75	10.71
5	0.94	59.10	10.04
6	4.45	-10.58	15.03
7	-1.07	-12.36	11.29
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO
1	0.570	1.000	1.000
2	0.501	1.035	1.035
3	0.636	1.053	1.053
4	0.638	0.994	0.994
5	0.695	0.937	0.937
6	0.617	1.038	1.038
7	0.679	1.072	1.072
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO
1	0.437	0.703	0.703
2	0.487	0.669	0.669
3	0.516	0.609	0.609
4	0.472	0.607	0.607
5	0.452	0.611	0.611
6	0.436	0.617	0.617
7	0.433	0.624	0.624
RADIAL POSITION	PERCENT IMMERGION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO
1	5.0000	0.974	0.968
2	10.0000	0.988	0.985
3	30.0000	0.991	0.993
4	50.0000	0.977	0.993
5	70.0000	0.970	0.990
6	90.0000	0.992	0.991
7	95.0000	0.938	0.972
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN SUCT SURF
1	524.36	680.80	40.12
2	561.45	707.34	36.66
3	578.78	744.99	35.34
4	560.55	744.62	39.09
5	566.50	758.10	40.40
6	491.48	716.32	41.80
7	474.66	787.62	53.71
RADIAL POSITION	INLET ABS VELOCITY	INLET REL VELOCITY	EXIT ABS VELOCITY
1	524.36	524.36	524.36
2	561.45	561.45	561.45
3	578.78	578.78	578.78
4	560.55	560.55	560.55
5	566.50	566.50	566.50
6	491.48	491.48	491.48
7	474.66	474.66	474.66
RADIAL POSITION	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS TANG VEL
1	434.21	434.21	434.21
2	468.56	468.56	468.56
3	488.16	488.16	488.16
4	498.38	498.38	498.38
5	513.41	513.41	513.41
6	621.72	621.72	621.72
RADIAL POSITION	INLET ABS YAW ANG	INLET REL YAW ANG	EXIT ABS YAW ANG
1	-4.47	-4.47	-4.47
2	6.10	6.10	6.10
3	38.88	38.88	38.88
4	19.08	19.08	19.08
5	4.66	4.66	4.66
6	39.66	39.66	39.66
7	-9.54	-9.54	-9.54
RADIAL POSITION	DIFFUSION FACTOR	POLY MOMEN RISE/STAT PRESS COEFF	CHI
1	0.441	0.7073	0.280
2	0.371	0.8500	0.277
3	0.356	0.8995	0.292
4	0.430	0.8126	0.351
5	0.468	0.7928	0.396
6	0.442	0.9414	0.452
7	0.539	0.6474	0.366
RADIAL POSITION	LOSS COEFFICIENT	LOSS PERCENT	LOSS PERCENT
1	0.163	1.5230	1.5230
2	0.069	1.5440	1.5440
3	0.031	1.6310	1.6310
4	0.024	1.7420	1.7420
5	0.040	1.8800	1.8800
6	0.068	2.0510	2.0510
7	0.102	2.0980	2.0980
RADIAL POSITION	PERFORMANCE PARAMETERS	PERCENT DESIGN SPEED	COR. NOZZLE WEIGHT FLOW
1	1.6296	100.1	214.7
2	0.9875	100.1	214.7
3	0.9750	100.1	214.7
4	0.9803	100.1	214.7
5	0.9875	100.1	214.7
6	0.9875	100.1	214.7
7	0.9875	100.1	214.7
RADIAL POSITION	STATOR DATA	STATOR DATA	STATOR DATA
1	FIXED INST. FLOW	FIXED INST. TRAV. INST.	FIXED INST. TRAV. INST.
2	1.6296	0.9875	0.9803
3	0.8565	0.9750	0.9803
4	Discharge Valve Setting=9.0		
5			
6			
7			
RADIAL POSITION	IF Check Flow/Noz.Flow	TE Check Flow/Noz.Flow	Assumed IR Flow Coeff.
1	0.9298	0.9251	0.9550
2	0.9298	0.9251	0.9550
3	0.9298	0.9251	0.9550
4	0.9298	0.9251	0.9550
5	0.9298	0.9251	0.9550
6	0.9298	0.9251	0.9550
7	0.9298	0.9251	0.9550

OVERALL PERFORMANCE SUMMARY

STATOR DATA STATOR DATA STATOR DATA
FIXED INST. FLOW INST. TRAV. INST.

PERFORMANCE PARAMETERS
Total Pressure Ratio = 1.6296
Polytropic Efficiency = 0.9875

Percent Design Speed = 100.1
Cor. Nozzle Weight Flow = 214.7

IF Check Flow/Noz.Flow = 0.9298
TE Check Flow/Noz.Flow = 0.9251
Assumed IR Flow Coeff. = 0.9550

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 16		READING NUMBER 340		DATE 9/ 1/1970	
RADIAL POSITION		RADIAL POSITION		RADIAL POSITION		RADIAL POSITION		RADIAL POSITION	
1	67.77	1	57.86	1	60.60	1	7.17	1	1480.17
2	65.49	2	55.66	2	59.61	2	5.86	2	1471.43
3	61.73	3	49.74	3	56.01	3	5.72	3	1379.08
4	59.83	4	48.12	4	52.56	4	7.27	4	1262.61
5	58.10	5	42.28	5	49.71	5	8.39	5	1138.42
6	56.94	6	31.17	6	47.11	6	9.83	6	972.71
7	56.44	7	14.10	7	46.13	7	10.31	7	917.13
RADIAL POSITION		RADIAL POSITION		RADIAL POSITION		RADIAL POSITION		RADIAL POSITION	
1	57.86	1	54.80	1	54.80	1	3.06	1	893.78
2	55.66	2	54.42	2	54.42	2	1.24	2	907.93
3	53.06	3	49.74	3	50.68	3	2.38	3	792.07
4	48.12	4	43.79	4	43.79	4	4.33	4	666.76
5	42.28	5	32.15	5	32.15	5	10.13	5	536.55
6	31.17	6	14.29	6	14.29	6	16.88	6	475.00
7	14.10	7	8.00	7	8.00	7	6.10	7	451.11
RADIAL POSITION		RADIAL POSITION		RADIAL POSITION		RADIAL POSITION		RADIAL POSITION	
1	1756.73	1	1742.00	1	1731	1	1.3340	1	0.7391
2	1726.45	2	1713.19	2	1704	2	1.3690	2	0.7834
3	1727.10	3	1725.03	3	1725	3	1.5080	3	0.8457
4	1766.77	4	1779.71	4	1763	4	1.6840	4	0.8197
5	233.49	5	954.49	5	1457	5	1.9060	5	0.8419
6	755.98	6	234.97	6	1407	6	2.2470	6	0.8560
7	741.39	7	405.60	7	1389	7	2.3390	7	0.8361
RADIAL POSITION		RADIAL POSITION		RADIAL POSITION		RADIAL POSITION		RADIAL POSITION	
1	1859	1	1869	1	1859	1	1.835	1	1.264
2	1800	2	1800	2	1800	2	1.845	2	1.250
3	1745	3	1745	3	1745	3	1.779	3	1.215
4	1670	4	1670	4	1670	4	1.686	4	1.200
5	1622	5	1622	5	1622	5	1.632	5	1.179
6	1622	6	1622	6	1622	6	1.592	6	1.166
7	1753	7	1753	7	1753	7	1.588	7	1.169

INLET REL VELOCITY 1480.17
 INLET REL VELOCITY 1471.43
 INLET REL VELOCITY 1379.08
 INLET REL VELOCITY 1262.61
 INLET REL VELOCITY 1138.42
 INLET REL VELOCITY 972.71
 INLET REL VELOCITY 917.13

EXIT REL VELOCITY 893.78
 EXIT REL VELOCITY 907.93
 EXIT REL VELOCITY 792.07
 EXIT REL VELOCITY 666.76
 EXIT REL VELOCITY 536.55
 EXIT REL VELOCITY 475.00
 EXIT REL VELOCITY 451.11

INLET AX VELOCITY 559.43
 INLET AX VELOCITY 609.99
 INLET AX VELOCITY 653.25
 INLET AX VELOCITY 634.14
 INLET AX VELOCITY 599.21
 INLET AX VELOCITY 524.01
 INLET AX VELOCITY 498.95

EXIT AX VELOCITY 474.94
 EXIT AX VELOCITY 511.57
 EXIT AX VELOCITY 475.99
 EXIT AX VELOCITY 445.09
 EXIT AX VELOCITY 396.25
 EXIT AX VELOCITY 401.79
 EXIT AX VELOCITY 428.37

INLET TANG VEL -12.27
 INLET TANG VEL -11.61
 INLET TANG VEL -17.44
 INLET TANG VEL -24.38
 INLET TANG VEL -29.20
 INLET TANG VEL -19.87
 INLET TANG VEL -10.66

EXIT TANG VEL 586.05
 EXIT TANG VEL 564.24
 EXIT TANG VEL 562.06
 EXIT TANG VEL 579.06
 EXIT TANG VEL 594.23
 EXIT TANG VEL 591.84
 EXIT TANG VEL 696.03

DIFFUSION FACTOR 0.1547
 DIFFUSION FACTOR 0.1525
 DIFFUSION FACTOR 0.1565
 DIFFUSION FACTOR 0.1614
 DIFFUSION FACTOR 0.1678
 DIFFUSION FACTOR 0.1657
 DIFFUSION FACTOR 0.1680

POLY MOMEN RISE/ STAT PRESS EFFICIENCY MEAS Y RISE RISE COEFF 0.7391
 POLY MOMEN RISE/ STAT PRESS EFFICIENCY MEAS Y RISE RISE COEFF 0.7834
 POLY MOMEN RISE/ STAT PRESS EFFICIENCY MEAS Y RISE RISE COEFF 0.8457
 POLY MOMEN RISE/ STAT PRESS EFFICIENCY MEAS Y RISE RISE COEFF 0.8197
 POLY MOMEN RISE/ STAT PRESS EFFICIENCY MEAS Y RISE RISE COEFF 0.8419
 POLY MOMEN RISE/ STAT PRESS EFFICIENCY MEAS Y RISE RISE COEFF 0.8560
 POLY MOMEN RISE/ STAT PRESS EFFICIENCY MEAS Y RISE RISE COEFF 0.8361

PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6883
 Adiabatic Efficiency = 0.7570
 Polytropic Efficiency = 0.7742

Percent Design Speed = 100.0
 Cor. Nozzle Weight Flow = 184.2
 Discharge Valve Setting = 4.3

OVERALL PERFORMANCE SUMMARY
 STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.6883 1.7361 1.7670
 0.7570 0.8006 0.8354
 0.7742 0.8155 0.8480

IE Check Flow/Noz.Flow = 1.0741
 Assumed IE Flow Coeff. = 0.9850
 Assumed IE Flow Coeff. = 0.9400

TABLE XIII - TASK I STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Concluded)

STATOR BLADE ROW - NASA TASK IV																					
BLADE ELEMENT PERFORMANCE RESULTS DATE 92 1/1970																					
POINT NUMBER 16 READING NUMBER 340																					
RADIAL POSITION	REL INLET FLOW ANG	ARS INLET FLOW ANG	CMRR LN LE ANGLE	INCID ANG MNCBRLN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ARS YANG VEL	INLET REL YANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS YANG VEL	EXIT REL YANG VEL	DIFFUSION FACTOR					
1	50.82	39.47	11.35	8.12	39.11	758.72	771.88	523.75	586.16	479.28	479.28	523.75	586.16	479.28	586.16	0.435					
2	47.93	39.04	8.89	9.92	39.11	756.72	771.88	506.90	566.29	479.28	479.28	506.90	566.29	479.28	566.29	0.435					
3	50.19	39.80	10.39	13.11	39.80	747.28	771.88	477.85	578.30	477.85	477.85	477.85	477.85	477.85	477.85	0.470					
4	53.97	40.86	13.11	11.25	40.86	721.85	771.88	423.06	561.67	423.06	423.06	423.06	423.06	423.06	423.06	0.577					
5	53.47	42.22	11.25	13.39	42.22	811.67	811.67	422.74	578.63	422.74	422.74	422.74	422.74	422.74	422.74	0.614					
6	56.15	42.76	13.39					449.48	670.17	449.48	449.48	449.48	449.48	449.48	449.48	0.732					
7																					
ROTOR BLADE ROW																					
RADIAL POSITION	REL INLET FLOW ANG	ARS EXIT FLOW ANG	CMRR LN LE ANGLE	DEV ANGLE	YURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS YANG VEL	EXIT REL YANG VEL	LOSS COEFFICIENT	TOT PRESS LOSS	ABD EFFICIENCY	POLY MOMEN RISE	STAT PRESS RISE	DIFFUSION FACTOR					
1	2.05	2.05	13.18	13.18	48.78	614.23	613.83	613.83	21.93	21.93	0.153	0.050	0.5617	0.169	0.169	0.435					
2	2.25	2.25	12.35	12.35	44.99	619.09	630.36	630.36	25.11	25.11	0.118	0.038	0.6533	0.189	0.189	0.435					
3	0.47	0.47	9.34	9.34	47.46	571.47	571.21	571.21	4.64	4.64	0.134	0.041	0.6304	0.247	0.247	0.435					
4	2.79	2.79	5.96	5.96	52.98	486.63	485.52	485.52	-23.64	-23.64	0.104	0.030	0.6202	0.329	0.329	0.435					
5	1.51	1.51	59.48	59.48	429.97	429.97	428.90	428.90	-11.27	-11.27	0.096	0.025	0.7575	0.434	0.434	0.435					
6	7.44	7.44	18.02	18.02	46.03	399.46	394.60	394.60	51.52	51.52	0.083	0.020	0.7840	0.511	0.511	0.435					
7	4.06	4.06	8.30	8.30	60.21	380.65	378.48	378.48	-26.86	-26.86	0.058	0.014	0.5605	0.427	0.427	0.435					
OVERALL PERFORMANCE SUMMARY																					
RADIAL POSITION	PERCENT IMMERSSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS															
1	5.0000	0.962	0.977	0.965	1.000	Total Pressure Ratio =															
2	10.0000	0.970	1.000	0.971	1.000	Polytropic Efficiency =															
3	30.0000	0.957	0.953	0.968	1.000	Percent Design Speed = 100.0															
4	50.0000	0.942	0.992	0.975	1.000	Cor. Nozzle Weight Flow = 184.2															
5	70.0000	0.954	0.992	0.978	1.000	Discharge Valve Setting = 4.3															
6	90.0000	0.963	0.993	0.981	1.000	IE Check Flow/Noz.Flow = 0.9781															
7	95.0000	0.893	0.985	0.982	1.000	Assumed IE Flow Coeff. = 0.9550															
						WE Check Flow/Noz.Flow = 1.0353															
						Assumed WE Flow Coeff. = 0.9530															

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STATOR BLADE ROW - NASA TASK IV

BLADE ELEMENT PERFORMANCE RESULTS DATE 92 1/1970

POINT NUMBER 16 READING NUMBER 340

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
FIXED INST. FIXED INST. TRAV. INST.

1.6883 0.9725 0.9549
0.7742 0.9494 0.7082

Discharge Valve Setting = 4.3

IE Check Flow/Noz.Flow = 0.9781
Assumed IE Flow Coeff. = 0.9550

WE Check Flow/Noz.Flow = 1.0353
Assumed WE Flow Coeff. = 0.9530

APPENDIX D

LISTING OF TASK I STAGE RADIAL
DISTORTION BLADE ELEMENT DATA

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA

		ROTOR BLADE ROW # NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS					DATE 6/4/1970				
		POINT NUMBER		READING NUMBER		DATE					
		10	31	10	31	10	31	10	31	10	31
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCLD ANG MN CMBR LN	INCLD ANG BUCY SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		70.95	-4.23	60.60	9.95	7.25	497.28	3479.90	492.14	336.39	1394.01
2		69.05	-3.51	59.61	9.44	6.42	523.33	1456.34	520.52	331.94	1350.65
3		61.33	-0.52	56.01	5.32	0.86	658.58	1372.84	658.47	26.03	1201.26
4		51.00	0.63	52.56	-1.56	7.40	859.17	1362.82	858.65	0.46	1057.92
5		46.71	0.30	49.74	3.08	-9.79	887.99	1285.64	875.67	4.66	920.72
6		47.24	-0.54	47.11	0.13	7.53	764.64	1102.08	733.87	4.97	793.70
7		47.90	-0.90	46.13	1.57	-6.33	720.74	1042.19	685.00	10.78	752.07
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANGLE TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		58.75	58.46	54.80	3.95	31.80	784.41	4790.94	409.88	667.81	678.47
2		54.46	54.14	54.42	0.04	14.59	807.05	413.33	472.27	653.33	661.10
3		46.19	46.19	50.66	1.21	9.44	745.70	836.46	516.12	538.06	658.11
4		48.90	42.66	43.79	4.71	8.50	713.56	791.90	524.70	481.43	593.00
5		42.59	43.31	32.15	10.44	4.12	706.45	698.25	513.09	481.72	471.67
6		33.70	47.55	14.29	19.01	13.52	573.60	573.60	477.48	523.98	313.49
7		23.64	51.81	5.00	15.64	24.06	789.81	524.92	471.84	593.78	204.58
RADIAL POSITION		ROTOR SPD AT INLET	ROTOR SPD AT EXIT	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS PARAM	EFFICIENCY	POLY MOMEN EFFICIENCY	RISE NEAS	STAT PRESS RISE COEFF
1		1257.02	0.451	1.341	0.833	1.3340	0.053	0.7434	0.7663	0.397	0.509
2		1227.71	0.478	1.324	0.907	1.3690	0.051	0.7793	0.7957	0.416	0.525
3		1198.23	0.512	1.275	0.784	1.5080	0.001	0.9927	0.9933	0.530	0.616
4		1067.38	0.514	1.292	0.613	1.6840	0.022	0.8608	0.8699	0.581	0.651
5		934.28	0.847	1.226	0.586	1.9060	0.011	0.9237	0.9283	0.639	0.683
6		786.73	0.719	1.036	0.651	2.2170	0.021	0.8771	0.8842	0.696	0.678
7		742.69	0.674	0.975	0.689	2.3390	0.027	0.8659	0.8737	0.696	0.608
RADIAL POSITION		ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	LOSS COEFFICIENT	TEMP RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA
1		1343.28	0.635	0.640	1.307	1.955	0.273	1.284	1.284	1.6675	1.7010
2		1314.44	0.661	0.666	1.307	1.967	0.243	1.275	1.275	0.7949	0.8282
3		1196.16	0.629	0.706	1.285	1.910	0.007	1.205	1.205	0.8091	0.8895
4		1074.83	0.611	0.678	1.218	1.910	0.110	1.148	1.148	Discharge Valve Settings=	7.0
5		955.40	0.611	0.604	1.164	1.568	0.058	1.144	1.144	TE Check Flow/Noz.Flow =	0.9094
6		835.66	0.617	0.500	1.144	1.528	0.114	1.149	1.149	Assumed LE Flow Coeff. =	0.9500
7		806.36	0.669	0.456	1.160	1.528	0.138	1.149	1.149		
OVERALL PERFORMANCE SUMMARY											
RADIAL POSITION		ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	LOSS COEFFICIENT	TEMP RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA
1		1343.28	0.635	0.640	1.307	1.955	0.273	1.284	1.284	1.6675	1.7010
2		1314.44	0.661	0.666	1.307	1.967	0.243	1.275	1.275	0.7949	0.8282
3		1196.16	0.629	0.706	1.285	1.910	0.007	1.205	1.205	0.8091	0.8895
4		1074.83	0.611	0.678	1.218	1.910	0.110	1.148	1.148	Discharge Valve Settings=	7.0
5		955.40	0.611	0.604	1.164	1.568	0.058	1.144	1.144	TE Check Flow/Noz.Flow =	0.9094
6		835.66	0.617	0.500	1.144	1.528	0.114	1.149	1.149	Assumed LE Flow Coeff. =	0.9500
7		806.36	0.669	0.456	1.160	1.528	0.138	1.149	1.149		

060070

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW # NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS										
		POINT NUMBER	10	READING NUMBER	31	DATE	6/ 4/1970					
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SURF	INLET ABS VELOCITY	INLET REL VBLOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET RFL TANG VEL	
1		58.33	39.47	18.66	787.52	814.47	413.50	483.10	655.70	670.22		
2		53.62	39.11	5.28	770.11	743.16	551.07	566.79	537.54	478.62		
3		44.29	39.80	-0.24	730.86	718.06	552.10	473.50	503.27	503.27		
4		40.18	40.66	6.52	755.83		495.59		575.85			
5		44.96	42.22									
6		41.96	42.76									
7		49.28										
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN LE ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VBLOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT RFL TANG VEL	
1		0.09	11.22	56.23	573.67	587.37	573.66	573.66	573.66	0.94		
2		3.58	13.66	50.04	41.86	558.60	566.20	566.20	566.20	36.67		
3		2.43	11.30	41.86	39.22	538.93	557.86	557.86	557.86	23.66		
4		0.96	8.75	39.22	40.69	508.29	538.26	538.26	538.26	9.02		
5		-0.07	9.10	40.69	43.04	451.37	507.20	507.20	507.20	-0.60		
6		1.93	10.51	43.04	51.80	423.76	440.73	440.73	440.73	15.12		
7		-2.52	12.36	51.80			422.01	422.01	422.01	-18.55		
RADIAL POSITION		REL INLET MACH NO	ABS INLET MACH NO	INLET REF AXIAL VEL RATIO	AXIAL VEL RATIO	INLET REF MACH NO	DIFFUSION FACTOR					
1		0.637	1.387	1.213	1.012	0.950	0.350	0.280	0.280	0.280	0.280	
2		0.667	1.213	1.012	0.950	0.919	0.525	0.525	0.525	0.525	0.525	
3		0.652	1.012	0.950	0.919	0.892	0.479	0.479	0.479	0.479	0.479	
4		0.638	0.950	0.919	0.892	0.852	0.455	0.455	0.455	0.455	0.455	
5		0.633	0.919	0.892	0.852		0.475	0.475	0.475	0.475	0.475	
6		0.622	0.892				0.534	0.534	0.534	0.534	0.534	
7		0.665	0.852				0.628	0.628	0.628	0.628	0.628	
RADIAL POSITION		REL EXIT MACH NO	ABS EXIT MACH NO	EXIT REL SOLIDITY COEFFICIENT	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	AD5 EFFICIENCY	AD5 EFFICIENCY	POLY MOMEN RISE/ RISE	SVAT PRESS RISE COEFF		
1		0.463	1.5230	0.155	0.051	0.6284	0.6284	0.6284	0.261	0.261	0.261	
2		0.477	1.5440	0.141	0.046	0.6160	0.6160	0.6160	0.263	0.263	0.263	
3		0.466	1.6310	0.070	0.022	0.7863	0.7863	0.7863	0.346	0.346	0.346	
4		0.455	1.7420	0.037	0.011	0.8731	0.8731	0.8731	0.430	0.430	0.430	
5		0.433	1.8800	0.043	0.011	0.8863	0.8863	0.8863	0.430	0.430	0.430	
6		0.483	2.0510	0.062	0.020	0.6152	0.6152	0.6152	0.466	0.466	0.466	
7		0.359	2.0980	0.092	0.022	0.6198	0.6198	0.6198	0.397	0.397	0.397	
RADIAL POSITION		PERCENT DISORTION	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY					
1		9.0000	0.954	0.963	1.006	1.006	STAGE DATA STATOR DATA STATOR DATA					
2		10.0000	0.946	0.963	1.006	1.006	FIXED INST. FIXED INST. TRAV. INST.					
3		30.0000	0.971	0.962	1.006	1.006	Total Pressure Ratio = 1.6675 0.9803 0.9853					
4		50.0000	0.995	0.991	1.006	1.006	Polytropic Efficiency = 0.8091 0.9635 0.9197					
5		70.0000	0.984	0.990	1.006	1.006	Percent Design Speed = 100.0 Discharge Valve Setting= 7.0					
6		90.0000	0.971	0.981	1.006	1.006	Cor. Nozzle Weight Flow= 203.1					
7		90.0000	0.928	0.975	1.006	1.006	LE Check Flow/Noz.Flow = 0.9142 TE Check Flow/Noz.Flow = 0.9245					
							Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350					

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW # NASA TASK 10										
BLADE ELEMENT PERFORMANCE RESULTS										
RADIAL POSITION	REL INLET FLOW ANG		ABS INLET FLOW ANG		CMR LN INCID ANG		LE ANGLE MN CMR LN		POINT NUMBER I1	
	REL INLET FLOW ANG	REL EXIT FLOW ANG	ABS INLET FLOW ANG	ABS EXIT FLOW ANG	CMR LN INCID ANG	LE ANGLE MN CMR LN	INLET ANGLE	INLET SUBT ANGLE	READING NUMBER S2	DATE
1	67.33	67.33	-0.02	43.94	60.60	6.53	3.83	3.83	67	4/1970
2	65.93	59.61	0.55	43.62	59.61	5.92	2.89	2.89		
3	58.04	47.93	0.52	39.93	57.01	2.63	-1.63	2.63		
4	47.93	45.82	0.80	35.30	52.56	1.63	-1.67	1.63		
5	45.82	45.86	0.54	39.83	49.71	1.09	-1.08	1.09		
6	45.86	46.74	-0.06	46.74	47.11	1.65	-1.31	1.65		
7	46.74		-0.30	46.74	46.13	0.61	-1.29	0.61		
RADIAL POSITION	REL INLET FLOW ANG		ABS INLET FLOW ANG		CMR LN REL DEV ANGLE		REL TURN ANGLE		EXIT ABS VELOCITY	
	REL INLET FLOW ANG	REL EXIT FLOW ANG	ABS INLET FLOW ANG	ABS EXIT FLOW ANG	CMR LN REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL
1	56.84	43.94	43.94	43.94	1.64	10.69	787.14	985.43	544.05	524.32
2	56.74	43.62	43.62	43.62	2.29	6.82	735.31	967.08	531.42	506.40
3	52.70	39.93	39.93	39.93	1.52	6.63	734.44	918.87	563.08	471.99
4	51.39	35.30	35.30	35.30	1.60	-5.47	673.51	880.84	549.55	389.16
5	45.93	39.83	39.83	39.83	12.88	0.60	679.99	736.63	521.15	434.65
6	40.73	41.38	41.38	41.38	16.44	14.73	762.29	667.21	566.94	499.47
7	22.06	46.74	46.74	46.74	14.86	23.88	803.56	605.80	547.63	336.97
RADIAL POSITION	ROTOR SPD AT INLET		INLET REL MACH NO		AXIAL VEL RATIO		EXIT ABS MACH NO		DIFFUSION FACTOR	
	ROTOR SPD AT INLET	ROTOR SPD AT EXIT	INLET REL MACH NO	EXIT REL MACH NO	AXIAL VEL RATIO	EXIT ABS MACH NO	EXIT ABS MACH NO	DIFFUSION FACTOR	DIFFUSION FACTOR	CHI
1	1358.86	1344.52	1.353	1.329	0.949	1.353	0.949	0.465	0.465	0.480
2	1328.93	1309.34	1.338	1.306	0.883	1.338	1.306	0.459	0.459	0.503
3	1199.34	1199.34	1.198	1.198	0.781	1.302	0.781	0.451	0.451	0.592
4	1068.37	1068.37	1.168	1.168	0.577	1.368	1.168	0.460	0.460	0.605
5	935.24	935.24	1.128	1.128	0.575	1.248	1.128	0.521	0.521	0.617
6	787.46	787.46	1.064	1.064	0.731	1.064	1.064	0.511	0.511	0.588
7	742.78	742.78	1.094	1.094	0.748	0.984	1.094	0.546	0.546	0.586
RADIAL POSITION	ROTOR SPD AT EXIT		EXIT ABS MACH NO		SOLIDITY COEFFICIENT		LOSS PARAM LOSS		TOT PRESS LOSS PARAM LOSS	
	ROTOR SPD AT EXIT	ROTOR SPD AT INLET	EXIT ABS MACH NO	EXIT ABS MACH NO	SOLIDITY COEFFICIENT	LOSS PARAM LOSS	TOT PRESS LOSS PARAM LOSS	TOT PRESS LOSS PARAM LOSS	EFFICIENCY	AD AB EFFICIENCY
1	1344.52	1358.86	1.329	1.353	1.3340	0.172	0.036	0.832	0.828	0.368
2	1315.85	1328.93	1.312	1.338	1.3690	0.161	-0.032	0.828	0.840	0.393
3	1197.87	1199.34	1.287	1.287	1.5080	-0.010	0.003	1.0187	1.0172	0.502
4	1077.83	1068.37	1.263	1.263	1.6840	0.117	0.022	1.0185	0.8282	0.521
5	954.28	935.24	1.190	1.190	1.9860	0.118	0.022	0.8231	0.8319	0.583
6	814.44	787.46	1.144	1.144	2.2170	0.144	0.026	0.8273	0.8382	0.592
7	807.31	742.78	1.150	1.150	2.3390	0.146	0.029	0.8442	0.8494	0.628
RADIAL POSITION	PERCENT INLET FLOW		PERCENT EXIT FLOW		FIXED TOT PRESS RATIO		FIXED TOT TEMP RATIO		PERFORMANCE PARAMETERS	
	PERCENT INLET FLOW	PERCENT EXIT FLOW	PERCENT INLET FLOW	PERCENT EXIT FLOW	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	PERFORMANCE PARAMETERS	PERFORMANCE PARAMETERS	PERFORMANCE PARAMETERS
1	9.8000	9.8000	1.665	1.665	1.820	1.230	1.820	1.230	1.5468	1.5710
2	9.8000	9.8000	1.636	1.636	1.817	1.230	1.817	1.230	0.8134	0.9251
3	9.8000	9.8000	1.605	1.605	1.805	1.144	1.805	1.144	0.7966	0.8249
4	9.8000	9.8000	1.476	1.476	1.436	1.133	1.476	1.133	Discharge Valve Setting=	12.0
5	9.8000	9.8000	1.483	1.483	1.452	1.136	1.483	1.136		
6	9.8000	9.8000	1.454	1.454	1.453	1.134	1.454	1.134		
7	9.8000	9.8000	1.454	1.454	1.453	1.134	1.454	1.134		
OVERALL PERFORMANCE SUMMARY										
STAGE DATA ROTOR DATA ROTOR DATA										
FIXED INST. FIXED INST. TRAV. INST.										
Total Pressure Ratio = 1.5468 1.5710 1.6406										
Adiabatic Efficiency = 0.7837 0.8134 0.9251										
Polytropic Efficiency = 0.7966 0.8249 0.9302										
Percent Design Speed = 100.1 Discharge Valve Setting= 12.0										
Cor. Nozzle Weight Flow= 211.4										
LE Check Flow/Noz.Flow = 0.9791 TE Check Flow/Noz.Flow = 0.9077										
Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500										

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW 3 NASA TASK IV											
BLADE ELEMENT PERFORMANCE RESULTS											
POINT NUMBER		11		32		DATE		67 4X1970			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANGLE	INLET SURF	INLET VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	43.77	43.77	39.47	4.30	760.65	549.24	549.24	549.24	526.22	526.22	
2	43.04	43.04	39.11	3.93	744.74	544.34	544.34	544.34	508.24	508.24	
3	37.96	37.96	36.01	-1.05	765.68	603.62	603.62	603.62	470.84	470.84	
4	32.91	32.91	30.80	-6.89	710.87	595.32	595.32	595.32	385.29	385.29	
5	37.17	37.17	40.86	-3.69	707.97	561.16	561.16	561.16	425.46	425.46	
6	38.66	38.66	42.22	-3.56	778.59	601.93	601.93	601.93	481.57	481.57	
7	43.77	43.77	42.76	1.01	807.92	577.44	577.44	577.44	553.22	553.22	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN LE ANGLE	DEV	YURM ANGLE	EXIT VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	1.29	1.29	11.13	12.42	49.49	590.06	589.91	589.91	13.25	13.25	
2	3.98	3.98	10.10	14.08	39.06	618.98	617.45	617.45	42.96	42.96	
3	1.40	1.40	8.87	10.27	66.55	608.13	607.70	607.70	17.87	17.87	
4	-2.11	-2.11	8.75	6.64	35.02	569.08	568.06	568.06	-20.92	-20.92	
5	-0.87	-0.87	8.10	8.23	36.04	594.28	593.03	593.03	8.42	8.42	
6	0.76	0.76	11.58	11.34	37.90	582.62	580.78	580.78	7.74	7.74	
7	-2.11	-2.11	12.36	10.28	45.88	550.96	548.61	548.61	-20.22	-20.22	
RADIAL POSITION	ROTOR SPD AT INLET	INLET REL MACH NO	AXIAL VEL RATIO	INLET REL MACH NO	YURM ANGLE	EXIT VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	0.488	0.488	1.5230	1.074	49.49	590.06	589.91	589.91	13.25	13.25	
2	0.514	0.514	1.5440	1.134	39.06	618.98	617.45	617.45	42.96	42.96	
3	0.488	0.488	1.6310	1.007	66.55	608.13	607.70	607.70	17.87	17.87	
4	0.477	0.477	1.7420	0.954	35.02	569.08	568.06	568.06	-20.92	-20.92	
5	0.502	0.502	1.8800	0.986	36.04	594.28	593.03	593.03	8.42	8.42	
6	0.474	0.474	2.0510	0.945	37.90	582.62	580.78	580.78	7.74	7.74	
7	0.488	0.488	2.0980	0.950	45.88	550.96	548.61	548.61	-20.22	-20.22	
RADIAL POSITION	PERCENT LAMEN FLOW	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS PARAM	YOT PRESS EFFICIENCY	ADD PRESS EFFICIENCY	POLY HOMOEN RISE/ MEAS T RISE	STAT PRESS COEFF
1	10.0000	0.980	0.962	1.006	1.006	0.160	0.027	0.5416	0.7567	0.215	0.191
2	30.0000	0.966	0.986	1.006	1.006	0.085	0.016	0.6811	0.229	0.229	0.215
3	50.0000	0.987	0.992	1.006	1.006	0.034	0.010	0.8664	0.291	0.291	0.215
4	70.0000	0.989	0.994	1.006	1.006	0.030	0.008	0.8962	0.322	0.322	0.215
5	90.0000	0.961	0.983	1.006	1.006	0.068	0.015	0.7148	0.286	0.286	0.215
6	98.0000	0.920	0.974	1.006	1.006	0.088	0.021	0.5372	0.256	0.256	0.215
OVERALL PERFORMANCE SUMMARY											
STAGE DATA						STATOR DATA					
FIXED INST. FIXED INST. TRAV. INST.						FIXED INST. FIXED INST. TRAV. INST.					
Total Pressure Ratio = 1.5468						Total Pressure Ratio = 0.9886					
Polytropic Efficiency = 0.1966						Polytropic Efficiency = 0.9657					
Percent Design Speed = 100.1						Discharge Valve Setting = 12.0					
Cor. Nozzle Weight Flow = 211.4						Cor. Nozzle Weight Flow = 211.4					
IE Check Flow/Noz.Flow = 0.9125						IE Check Flow/Noz.Flow = 0.8899					
Assumed IE Flow Coeff. = 0.9500						Assumed IE Flow Coeff. = 0.9550					

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

060070

ROTOR BLADE ROW # NASA TASK ID
BLADE ELEMENT PERFORMANCE RESULTS
POINT NUMBER 12 READING NUMBER 33 DATE 6/ 4/1970

RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCLD ANB MN CMBR LN	INLET ANB SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET AX TANG VEL
1	64.81	-0.02	60.60	5.61	3.24	595.16	1483.72	590.08	-0.121	3354.80	590.08
2	64.75	1.04	59.61	4.84	4.81	629.05	1453.81	626.29	17.96	3310.79	626.29
3	57.98	1.20	56.01	1.87	-2.59	743.36	1397.61	743.18	15.55	3181.43	743.18
4	40.32	1.01	52.56	-6.24	-12.08	1006.18	1454.52	1003.13	17.73	1050.50	1003.13
5	45.35	0.48	49.71	-4.78	-11.17	920.81	1313.22	916.59	17.73	922.39	916.59
6	45.32	0.78	47.11	-7.49	-7.49	787.44	1117.04	765.37	5.11	782.24	765.37
7	46.84	-1.03	46.13	0.71	-7.19	745.19	1061.80	708.22	-12.68	755.15	708.22
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN LE ANGLE	INCLD ANB MN CMBR LN	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT AX TANG VEL
1	57.75	33.28	3.15	3.15	8.56	715.58	1125.41	596.26	391.54	952.80	596.26
2	58.27	32.18	54.42	3.85	6.18	697.36	1114.38	585.47	368.46	947.02	585.47
3	52.70	31.01	50.68	2.02	5.18	730.06	1032.36	625.56	376.02	821.09	625.56
4	58.56	26.85	43.79	6.37	-5.84	873.35	979.20	800.84	304.05	773.24	800.84
5	44.49	31.65	32.15	12.34	0.83	704.23	839.80	597.99	368.62	587.54	597.99
6	27.80	35.29	16.29	13.01	18.33	846.04	778.61	683.41	483.65	352.67	683.41
7	23.96	41.29	8.00	15.96	24.89	822.59	680.45	610.24	535.87	271.14	610.24
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	EXIT ABS MACH NO	REL REL AXIAL VEL RATIO	LOSS COEFFICIENT	SOLIDITY	REL REL SOLIDITY RATIO	LOSS	FIXED TGT TEMP	FIXED TOY PRESS	FIXED TOY RATIO
1	1658.69	0.547	1.364	1.010	0.150	1.3340	1.3340	0.150	1.170	1.176	1.176
2	1828.76	0.581	1.343	0.934	0.109	1.3690	1.3690	0.109	1.163	1.154	1.154
3	1399.18	0.697	1.310	0.842	-0.008	1.5080	1.5080	-0.008	1.145	1.142	1.142
4	1668.22	0.777	1.413	0.599	0.124	1.6840	1.6840	0.124	1.112	1.091	1.091
5	935.12	0.892	1.259	0.652	0.154	1.9060	1.9060	0.154	1.106	1.106	1.106
6	787.35	0.751	1.052	0.893	0.164	2.2170	2.2170	0.164	1.102	1.128	1.128
7	742.88	0.699	0.995	0.862	0.207	2.3390	2.3390	0.207	1.123	1.136	1.136
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	REL REL AXIAL VEL RATIO	LOSS	EFFICIENCY	REL REL EFFICIENCY	LOSS	FIXED TGT TEMP	FIXED TOY PRESS	FIXED TOY RATIO
1	1844.34	0.611	0.962	1.010	0.150	0.7904	0.7904	0.150	0.855	0.855	0.855
2	1315.48	0.597	0.960	0.934	0.109	0.8460	0.8460	0.109	0.855	0.855	0.855
3	1377.11	0.636	0.999	0.842	-0.008	1.0122	1.0122	-0.008	0.855	0.855	0.855
4	1077.28	0.792	0.862	0.599	0.124	0.7590	0.7590	0.124	0.855	0.855	0.855
5	956.13	0.819	0.738	0.652	0.154	0.7181	0.7181	0.154	0.855	0.855	0.855
6	836.33	0.753	0.693	0.893	0.164	0.7865	0.7865	0.164	0.855	0.855	0.855
7	807.00	0.727	0.601	0.862	0.207	0.7585	0.7585	0.207	0.855	0.855	0.855
RADIAL POSITION	PERCENT REGENERATION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOY PRESS RATIO	FIXED TOY TEMP RATIO	PERFORM PARAMETERS	PERFORM PARAMETERS	PERFORM PARAMETERS	PERFORM PARAMETERS	PERFORM PARAMETERS	PERFORM PARAMETERS
1	5.0000	1.587	1.587	1.584	1.170	Total Pressure Ratio =	1.3659	1.4044	1.4655	1.4655	1.4655
2	18.0000	1.569	1.569	1.570	1.163	Adiabatic Efficiency =	0.6975	0.7685	0.9066	0.9066	0.9066
3	30.0000	1.607	1.607	1.615	1.145	Polytropic Efficiency =	0.7105	0.7793	0.9115	0.9115	0.9115
4	50.0000	1.348	1.348	1.328	1.112	Percent Design Speed =	100.1	100.1	100.1	100.1	100.1
5	70.0000	1.291	1.291	1.291	1.106	Cor. Nozzle Weight Flow =	214.4	214.4	214.4	214.4	214.4
6	90.0000	1.438	1.438	1.502	1.128	Discharge Valve Setting =	30.0	30.0	30.0	30.0	30.0
7	98.0000	1.406	1.406	1.361	1.136						

OVERALL PERFORMANCE SUMMARY
STAGE DATA ROTOR DATA ROTOR DATA
FIXED INST. FIXED INST. TRAV. INST.
1.3659 1.4044 1.4655
0.6975 0.7685 0.9066
0.7105 0.7793 0.9115
Discharge Valve Setting= 30.0
Percent Design Speed = 100.1
Cor. Nozzle Weight Flow= 214.4
IE Check Flow/Noz.Flow = 0.9733 TE Check Flow/Noz.Flow = 0.9160
Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE FOR 2		NASA TASK 10										
BLADE ELEMENT PERFORMANCE RESULTS		DATE 67 4X1970										
POINT NUMBER 12		READING NUMBER 38										
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG	HN CHBR LN	SUCT 80HP	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	33.11	33.11	39.47	56.36	719.56			605.55	605.55	605.55	592.95	592.95
2	33.62	33.62	39.11	-7.49	705.45			600.72	600.72	600.72	569.79	569.79
3	21.07	21.07	39.01	9.04	773.53			675.66	675.66	675.66	875.66	875.66
4	21.67	21.67	39.80	415.13	722.95			655.27	655.27	655.27	301.02	301.02
5	29.04	29.04	40.86	413.82	748.03			649.80	649.80	649.80	360.82	360.82
6	32.35	32.35	42.22	79.87	881.73			736.26	736.26	736.26	466.32	466.32
7	38.52	38.52	42.76	74.24	835.62			546.37	546.37	546.37	514.46	514.46
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN LE ANGLE	DEV ANG	TE ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT REL TANG VEL
1	21.46	21.46	51.13	13.59	30.65	30.65	628.61	628.22	628.22	27.02	27.02	27.02
2	2.22	2.22	50.10	12.32	29.74	29.74	680.64	680.08	680.08	26.71	26.71	26.71
3	0.43	0.43	50.87	9.30	28.65	28.65	704.87	704.06	704.06	5.23	5.23	5.23
4	-1.09	-1.09	50.75	7.66	25.76	25.76	666.81	665.95	665.95	512.63	512.63	512.63
5	-1.54	-1.54	50.10	7.56	30.58	30.58	666.78	665.12	665.12	517.86	517.86	517.86
6	1.92	1.92	50.58	12.50	30.43	30.43	797.35	794.45	794.45	26.58	26.58	26.58
7	1.33	1.33	52.36	13.69	37.19	37.19	773.68	770.38	770.38	17.84	17.84	17.84
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHI						
1	0.615	0.615	1.043	1.043	0.293	0.012						
2	0.609	0.609	1.147	1.147	0.293	0.012						
3	0.677	0.677	1.042	1.042	0.180	0.025						
4	0.640	0.640	1.016	1.016	0.236	0.051						
5	0.661	0.661	1.024	1.024	0.201	0.031						
6	0.789	0.789	1.079	1.079	0.242	0.033						
7	0.739	0.739	1.192	1.192	0.215	0.002						
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	POLY TROPIC EFFICIENCY	ADP EFFICIENCY	POLY TROPIC EFFICIENCY	POLY TROPIC EFFICIENCY	POLY TROPIC EFFICIENCY	POLY TROPIC EFFICIENCY	POLY TROPIC EFFICIENCY
1	0.535	0.535	0.993	1.5230	0.214	0.070	0.0519	0.0519	0.0519	0.0519	0.0519	0.0519
2	0.593	0.593	0.978	1.5440	0.078	0.023	0.5195	0.5195	0.5195	0.5195	0.5195	0.5195
3	0.611	0.611	0.902	1.6310	0.102	0.031	0.2997	0.2997	0.2997	0.2997	0.2997	0.2997
4	0.585	0.585	0.945	1.7420	0.145	0.042	0.2030	0.2030	0.2030	0.2030	0.2030	0.2030
5	0.587	0.587	0.998	1.8800	0.098	0.026	0.1706	0.1706	0.1706	0.1706	0.1706	0.1706
6	0.707	0.707	0.897	2.0510	0.097	0.024	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092
7	0.683	0.683	0.916	2.0980	0.116	0.026	0.0092	0.0092	0.0092	0.0092	0.0092	0.0092
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA	STATOR DATA	STATOR DATA	STATOR DATA	STATOR DATA
1	5.0000	0.945	0.990	0.951	1.008	1.008	Total Pressure Ratio = 1.3629	1.3629	0.9705	0.9593	0.9593	0.9593
2	10.0000	0.994	1.004	0.995	1.008	1.008	Polytropic Efficiency = 0.7105	0.7105	0.9117	0.1986	0.1986	0.1986
3	30.0000	0.962	1.003	0.935	1.008	1.008	Percent Design Speed = 100.1	100.1	Discharge Valve Setting = 30.0			
4	50.0000	0.966	1.003	0.935	1.008	1.008	Cor. Nozzle Weight Flow = 214.4	214.4				
5	70.0000	0.952	0.989	0.975	1.008	1.008	IE Check Flow/Noz.Flow = 0.9228	0.9228	TE Check Flow/Noz.Flow = 0.8910	0.8910	0.8910	0.8910
6	90.0000	0.926	0.997	0.966	1.008	1.008	Assumed IE Flow Coeff. = 0.9500	0.9500	Assumed TE Flow Coeff. = 0.9350	0.9350	0.9350	0.9350
7	98.0000	0.946	0.988	0.966	1.008	1.008						

061170 ROTOR BLADE ROW # NASA TASK IV
 TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

RADIAL POSITION		REL INLET FLOW ANG		ABS INLET FLOW ANG		CHBR LN LE ANGLE		INCID ANG MN CHBR LN		SUCTION SURF		INLET ABS VELOCITY		INLET AX VELOCITY		INLET ABS TANG VEL		INLET REL TANG VFL	
RADIAL POSITION		REL INLET FLOW ANG		ABS INLET FLOW ANG		CHBR LN LE ANGLE		INCID ANG MN CHBR LN		SUCTION SURF		INLET ABS VELOCITY		INLET AX VELOCITY		INLET ABS TANG VEL		INLET REL TANG VFL	
RADIAL POSITION		REL INLET FLOW ANG		ABS INLET FLOW ANG		CHBR LN LE ANGLE		INCID ANG MN CHBR LN		SUCTION SURF		INLET ABS VELOCITY		INLET AX VELOCITY		INLET ABS TANG VEL		INLET REL TANG VFL	
1	1	70.97	-4.57	70.97	-4.57	60.60	16.37	7.67	488.37	1482.78	483.11	483.11	-38.60	483.11	483.11	-38.60	483.11	1406.55	
2	2	69.23	-2.90	69.23	-2.90	59.61	19.62	6.59	517.50	1553.02	515.03	515.03	-26.05	515.03	515.03	-26.05	515.03	1397.99	
3	3	61.95	-1.28	61.95	-1.28	56.01	5.94	3.48	648.32	1378.20	648.15	648.15	-14.22	648.15	648.15	-14.22	648.15	1216.28	
4	4	51.22	0.48	51.22	0.48	52.56	-1.34	-7.18	852.48	1356.49	849.93	849.93	13.03	849.93	849.93	13.03	849.93	1057.76	
5	5	46.62	-0.12	46.62	-0.12	49.71	-3.09	-9.88	900.18	1300.99	887.70	887.70	-1.88	887.70	887.70	-1.88	887.70	939.24	
6	6	46.84	-0.56	46.84	-0.56	47.11	-6.27	-7.93	778.33	1113.69	747.01	747.01	-7.36	747.01	747.01	-7.36	747.01	794.60	
7	7	47.61	-1.06	47.61	-1.06	46.13	1.48	6.42	727.24	1049.81	691.15	691.15	-12.77	691.15	691.15	-12.77	691.15	757.93	
1	1	58.14	57.82	58.14	57.82	54.80	3.54	12.63	788.08	800.19	419.68	419.68	667.05	419.68	419.68	667.05	419.68	680.51	
2	2	56.62	53.93	56.62	53.93	54.82	2.20	12.61	775.67	829.96	456.19	456.19	626.76	456.19	456.19	626.76	456.19	692.37	
3	3	52.05	44.74	52.05	44.74	50.68	1.37	9.89	743.24	858.46	523.10	523.10	577.62	523.10	523.10	577.62	523.10	674.88	
4	4	49.35	42.73	49.35	42.73	48.79	5.56	3.87	704.06	793.89	517.14	517.14	477.63	517.14	477.63	477.63	517.14	602.24	
5	5	42.59	42.05	42.59	42.05	32.15	10.44	4.02	710.03	716.19	526.26	526.26	474.64	526.26	474.64	474.64	526.26	483.80	
6	6	32.71	46.12	32.71	46.12	14.29	18.42	14.13	724.44	598.69	498.35	498.35	518.25	498.35	498.35	518.25	498.35	320.88	
7	7	24.17	50.99	24.17	50.99	8.00	16.17	23.44	770.40	536.79	480.58	480.58	593.24	480.58	480.58	593.24	480.58	219.70	
1	1	1361.95	0.442	1361.95	0.442	1.341	0.869	0.258	0.051	0.7544	0.7544	0.7544	0.7544	0.7544	0.7544	0.7544	0.7544	0.7544	0.383
2	2	1351.94	0.469	1351.94	0.469	1.317	0.886	0.224	0.045	0.7889	0.7889	0.7889	0.7889	0.7889	0.7889	0.7889	0.7889	0.7889	0.410
3	3	1282.06	0.602	1282.06	0.602	1.179	0.814	0.018	0.004	0.9809	0.9809	0.9809	0.9809	0.9809	0.9809	0.9809	0.9809	0.9809	0.506
4	4	1070.79	0.806	1070.79	0.806	1.285	0.608	0.142	0.027	0.8217	0.8217	0.8217	0.8217	0.8217	0.8217	0.8217	0.8217	0.8217	0.572
5	5	937.16	0.863	937.16	0.863	1.247	0.593	0.076	0.015	0.6984	0.6984	0.6984	0.6984	0.6984	0.6984	0.6984	0.6984	0.6984	0.616
6	6	789.74	0.731	789.74	0.731	1.046	0.667	0.105	0.020	0.6852	0.6852	0.6852	0.6852	0.6852	0.6852	0.6852	0.6852	0.6852	0.676
7	7	744.46	0.679	744.46	0.679	0.980	0.695	0.120	0.023	0.6819	0.6819	0.6819	0.6819	0.6819	0.6819	0.6819	0.6819	0.6819	0.772
1	1	1347.56	2.008	1347.56	2.008	1.289	1.933	1.274	1.274	1.274	1.274	1.274	1.274	1.274	1.274	1.274	1.274	1.274	1.7397
2	2	1199.63	1.987	1199.63	1.987	1.253	1.956	1.268	1.268	1.268	1.268	1.268	1.268	1.268	1.268	1.268	1.268	1.268	0.8846
3	3	1195.98	1.894	1195.98	1.894	1.219	1.888	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	1.203	0.8941
4	4	1075.87	1.649	1075.87	1.649	1.162	1.587	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.172	1.6799
5	5	958.45	1.566	958.45	1.566	1.152	1.550	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	1.149	0.8846
6	6	838.73	1.530	838.73	1.530	1.150	1.525	1.145	1.145	1.145	1.145	1.145	1.145	1.145	1.145	1.145	1.145	1.145	0.8941
7	7	808.94	1.598	808.94	1.598	1.197	1.534	1.140	1.140	1.140	1.140	1.140	1.140	1.140	1.140	1.140	1.140	1.140	1.6799

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST. TRAV. INST.
 1.6490 1.6799 1.7397
 0.7863 0.8177 0.8846
 0.8008 0.8305 0.8941
 Discharge Valve Setting= 7.5
 IE Check Flow/Noz.Flow = 0.9773 TE Check Flow/Noz.Flow = 0.8979
 Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

061170 STATOR BLADE ROW # NASA TASK IV
 TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

RADIAL POSITION		BLADE ELEMENT PERFORMANCE RESULTS										INLET REL VELOCITY		INLET ABS TANG VFL	
POINT NUMBER		4				51				6/10/1970		INLET AX VELOCITY		INLET ABS TANG VFL	
RADIAL POSITION		CHBR LN	INCID ANG	INCID ANG	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VFL						
1	1	57.59	39.47	18.22	79.242	423.43	669.46	423.43	669.46	423.43	669.46	423.43	669.46	423.43	669.46
1	2	53.41	39.41	14.30	78.280	466.58	628.54	466.58	628.54	466.58	628.54	466.58	628.54	466.58	628.54
1	3	42.82	39.01	3.81	76.20	564.01	522.60	564.01	522.60	564.01	522.60	564.01	522.60	564.01	522.60
1	4	40.27	39.00	0.47	73.92	556.24	472.88	556.24	472.88	556.24	472.88	556.24	472.88	556.24	472.88
2	1	39.34	40.86	-1.52	73.63	566.87	464.61	566.87	464.61	566.87	464.61	566.87	464.61	566.87	464.61
2	2	43.50	42.22	1.28	73.218	526.55	499.67	526.55	499.67	526.55	499.67	526.55	499.67	526.55	499.67
2	3	48.44	42.76	5.68	76.747	504.94	569.57	504.94	569.57	504.94	569.57	504.94	569.57	504.94	569.57
3	1	32.81	41.13	8.32	75.11	540.09	500.18	540.09	500.18	540.09	500.18	540.09	500.18	540.09	500.18
3	2	31.13	41.13	13.71	50.28	592.57	32.40	592.57	32.40	592.57	32.40	592.57	32.40	592.57	32.40
3	3	10.85	40.84	10.85	53.42	552.86	19.11	552.86	19.11	552.86	19.11	552.86	19.11	552.86	19.11
3	4	8.14	40.88	8.14	524.00	523.39	-5.62	523.39	-5.62	523.39	-5.62	523.39	-5.62	523.39	-5.62
4	1	7.74	40.78	7.74	522.02	520.75	-12.41	520.75	-12.41	520.75	-12.41	520.75	-12.41	520.75	-12.41
4	2	10.59	43.49	10.59	492.90	491.38	0.05	491.38	0.05	491.38	0.05	491.38	0.05	491.38	0.05
4	3	6.87	53.93	6.87	469.92	466.27	-44.63	466.27	-44.63	466.27	-44.63	466.27	-44.63	466.27	-44.63
5	1	1.323	1.323	1.323	1.323	0.290	0.290	0.290	0.290	0.290	0.290	0.290	0.290	0.290	0.290
5	2	0.647	1.270	0.647	0.647	0.302	0.302	0.302	0.302	0.302	0.302	0.302	0.302	0.302	0.302
5	3	0.651	0.980	0.651	0.651	0.349	0.349	0.349	0.349	0.349	0.349	0.349	0.349	0.349	0.349
5	4	0.629	0.938	0.629	0.629	0.413	0.413	0.413	0.413	0.413	0.413	0.413	0.413	0.413	0.413
5	5	0.639	0.919	0.639	0.639	0.441	0.441	0.441	0.441	0.441	0.441	0.441	0.441	0.441	0.441
5	6	0.634	0.933	0.634	0.634	0.458	0.458	0.458	0.458	0.458	0.458	0.458	0.458	0.458	0.458
5	7	0.663	0.923	0.663	0.663	0.408	0.408	0.408	0.408	0.408	0.408	0.408	0.408	0.408	0.408
6	1	0.454	1.5230	0.454	0.454	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270	0.270
6	2	0.483	1.5440	0.483	0.483	0.241	0.241	0.241	0.241	0.241	0.241	0.241	0.241	0.241	0.241
6	3	0.462	1.6310	0.462	0.462	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346
6	4	0.442	1.7420	0.442	0.442	0.391	0.391	0.391	0.391	0.391	0.391	0.391	0.391	0.391	0.391
6	5	0.445	1.8800	0.445	0.445	0.417	0.417	0.417	0.417	0.417	0.417	0.417	0.417	0.417	0.417
6	6	0.428	2.0510	0.428	0.428	0.435	0.435	0.435	0.435	0.435	0.435	0.435	0.435	0.435	0.435
6	7	0.399	2.0980	0.399	0.399	0.343	0.343	0.343	0.343	0.343	0.343	0.343	0.343	0.343	0.343
7	1	5.0000	1.947	5.0000	5.0000	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927	0.927
7	2	10.0000	0.971	10.0000	10.0000	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950	0.950
7	3	30.0000	0.967	30.0000	30.0000	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910	0.910
7	4	50.0000	0.970	50.0000	50.0000	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981	0.981
7	5	70.0000	0.981	70.0000	70.0000	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995	0.995
7	6	90.0000	0.985	90.0000	90.0000	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994	0.994
7	7	95.0000	0.978	95.0000	95.0000	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990	0.990
7	8	95.0000	0.939	95.0000	95.0000	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967	0.967

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.6490 0.9816 0.9714
 Polytropic Efficiency = 0.8008 0.9642 0.9332
 Percent Design Speed = 100.3
 Cor. Nozzle Weight Flow = 204.3
 Discharge Valve Setting = 7.5
 IE Check Flow/Noz.Flow = 0.9027 IE Check Flow/Noz.Flow = 0.9110
 Assumed IE Flow Coeff. = 0.9500 Assumed IE Flow Coeff. = 0.9350

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TABLE XIV - TASK 1 STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW # NACA TASK IV											
		BLADE ELEMENT PERFORMANCE RESULTS						6/10/1970					
		POINT NUMBER		5		READING NUMBER		52		DATE		6/10/1970	
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SUPP	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VFL	INLET REL TANG VFL
1		2.92	60.60	8.07	8.07	6.17	524.32	1483.10	519.64	226.47	1387.58	1387.58	
2		1.82	59.61	8.02	4.99	4.99	557.32	1459.28	555.08	-17.67	1348.78	1348.78	
3		0.31	58.67	3.06	0.68	0.68	698.08	1390.92	698.06	-1.28	1202.90	1202.90	
4		1.30	58.56	2.44	0.28	0.28	879.14	1368.44	878.38	19.94	1058.18	1058.18	
5		0.09	49.71	-3.85	-18.64	-18.64	920.44	1312.26	907.68	3.46	935.32	935.32	
6		40.32	47.11	-0.79	-8.45	-8.45	789.59	1119.53	757.84	-4.92	793.67	793.67	
7		41.02	46.13	0.69	-7.01	-7.01	743.18	1061.48	706.28	-14.04	758.04	758.04	
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DRW ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VFL	EXIT REL TANG VFL
1		50.78	51.67	54.80	1.98	12.69	778.95	881.53	862.35	610.13	736.40	736.40	
2		56.66	49.28	54.48	2.94	10.67	749.44	896.28	868.25	567.22	750.59	750.59	
3		58.96	43.05	50.68	1.28	7.91	743.97	879.77	842.06	506.44	699.79	699.79	
4		50.08	40.56	43.79	6.29	6.08	692.73	820.07	926.23	450.34	628.85	628.85	
5		43.32	41.26	38.15	11.17	2.54	703.33	724.59	926.16	461.64	496.20	496.20	
6		31.91	44.06	14.89	17.62	14.42	739.07	627.60	926.79	509.82	327.99	327.99	
7		23.92	48.91	8.80	15.92	23.10	783.12	566.71	908.37	582.95	225.49	225.49	
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	REL DRW ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VFL	EXIT REL TANG VFL
1		1361.10	0.477	1338.10	0.928	0.928	881.53	881.53	862.35	610.13	736.40	736.40	
2		1338.11	0.509	1283.11	0.880	0.880	896.28	896.28	868.25	567.22	750.59	750.59	
3		1283.11	0.653	1300.11	0.777	0.777	879.77	879.77	842.06	506.44	699.79	699.79	
4		1279.12	0.839	1290.12	0.600	0.600	820.07	820.07	926.23	450.34	628.85	628.85	
5		1267.78	0.889	1286.78	0.580	0.580	724.59	724.59	926.16	461.64	496.20	496.20	
6		1288.75	0.747	1260.75	0.695	0.695	627.60	627.60	926.79	509.82	327.99	327.99	
7		1233.99	0.697	1299.99	0.728	0.728	566.71	566.71	908.37	582.95	225.49	225.49	
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	REL DRW ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VFL	EXIT REL TANG VFL
1		1346.72	0.642	1334.72	1.330	0.189	881.53	881.53	862.35	610.13	736.40	736.40	
2		1313.61	0.625	1336.61	1.369	0.169	896.28	896.28	868.25	567.22	750.59	750.59	
3		1193.23	0.629	1309.23	1.508	-0.018	879.77	879.77	842.06	506.44	699.79	699.79	
4		1079.19	0.595	1384.19	1.684	0.141	820.07	820.07	926.23	450.34	628.85	628.85	
5		957.85	0.608	1300.85	1.900	0.043	724.59	724.59	926.16	461.64	496.20	496.20	
6		833.61	0.642	1250.61	2.210	0.119	627.60	627.60	926.79	509.82	327.99	327.99	
7		883.43	0.680	1239.43	2.330	0.125	566.71	566.71	908.37	582.95	225.49	225.49	
RADIAL POSITION		TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS	TRAV TOY PRESS
1		1.970	1.280	1.933	1.905	1.930	1.930	1.930	1.930	1.930	1.930	1.930	1.930
2		1.933	1.281	1.928	1.879	1.848	1.848	1.848	1.848	1.848	1.848	1.848	1.848
3		1.876	1.211	1.879	1.754	1.764	1.764	1.764	1.764	1.764	1.764	1.764	1.764
4		1.612	1.158	1.612	1.544	1.544	1.544	1.544	1.544	1.544	1.544	1.544	1.544
5		1.532	1.152	1.532	1.494	1.494	1.494	1.494	1.494	1.494	1.494	1.494	1.494
6		1.323	1.156	1.323	1.443	1.443	1.443	1.443	1.443	1.443	1.443	1.443	1.443
7		1.587	1.138	1.587	1.504	1.504	1.504	1.504	1.504	1.504	1.504	1.504	1.504

OVERALL PERFORMANCE SUMMARY

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.
1-6168	1-6461	1-7150
0.7988	0.8287	0.8323
0.8101	0.8403	0.8036
Percent Design Speed = 100.2		
Cor. Nozzle Weight Flow = 207.5		

IE Check Flow/Noz.Flow = 0.9827
 Assumed LE Flow Coeff. = 0.9850
 TE Check Flow/Noz.Flow = 0.9827
 Assumed TE Flow Coeff. = 0.9500

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW # NASA TASK IV		POINT NUMBER 5		BLADE ELEMENT PERFORMANCE RESULTS		READING NUMBER 52		DATE 6/10/1970			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN	INCID ANG CHBR LN	INCID ANG SURE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	51.52	48.73	39.47	12.05	12.05	782.24	782.24	486.77	486.77	612.33	612.33
2	41.10	39.01	39.11	9.62	9.62	757.48	757.48	499.67	499.67	569.28	569.28
3	38.10	39.60	39.60	2.09	2.09	769.93	769.93	579.92	579.92	505.96	505.96
4	38.56	40.86	40.86	-1.70	-1.70	723.93	723.93	568.58	568.58	445.86	445.86
5	41.40	42.22	42.22	-0.82	-0.82	728.63	728.63	566.82	566.82	451.89	451.89
7	46.30	42.76	42.76	3.54	3.54	781.10	781.10	557.57	557.57	491.55	491.55
								534.85	534.85	559.68	559.68
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	2.15	3.68	*11.13	13.28	49.37	556.71	556.71	356.32	20.86	20.86	
2	0.53	0.53	*10.10	13.98	44.85	594.92	594.92	359.53	40.21	40.21	
3	-2.30	-0.75	-8.67	9.40	40.57	570.75	570.75	329.91	5.30	5.30	
4	-1.30	-9.10	-9.10	6.45	48.40	530.93	530.93	329.91	-21.29	-21.29	
5	-0.12	*10.38	*10.31	7.80	39.86	527.80	527.80	329.91	-11.92	-11.92	
7	-2.19	-2.19	*12.36	10.31	41.67	512.97	512.97	329.91	-2.45	-2.45	
					49.26	488.72	488.72	329.91	-25.15	-25.15	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT LOSS PARAM	ABD EFFICIENCY	POLY EFFICIENCY	MOMEN RISE/MEAS Y RISE	STAT RISE COEFF	CHI
1	0.645	0.632	1.143	1.5230	0.151	0.050	0.050	0.5649	0.249	0.249	0.268
2	0.655	0.655	1.188	1.5440	0.134	0.043	0.043	0.7910	0.282	0.282	0.302
3	0.624	0.624	0.984	1.6310	0.060	0.018	0.018	0.7694	0.317	0.317	0.340
4	0.633	0.633	0.929	1.7420	0.037	0.011	0.011	0.8538	0.370	0.370	0.393
5	0.652	0.652	0.917	1.6800	0.033	0.009	0.009	0.8819	0.392	0.392	0.416
7	0.680	0.680	0.910	2.0510	0.065	0.016	0.016	0.7758	0.382	0.382	0.407
				2.0960	0.094	0.022	0.022	0.6209	0.370	0.370	0.370
RADIAL POSITION	PERCENT LOSS AT EXIT	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	OVERALL PERFORMANCE SUMMARY			
1	9.0000	0.942	0.976	0.962	1.000	1.000	STAGE DATA STATOR DATA STATOR DATA	STAGE DATA STATOR DATA STATOR DATA			
2	10.0000	0.978	1.002	0.969	1.000	1.000	FIXED INST. FIXED INST. TRAV. INST.	FIXED INST. FIXED INST. TRAV. INST.			
3	30.0000	0.970	0.990	0.985	1.000	1.000	Total Pressure Ratio =	1.6168	0.9822	0.9714	
4	50.0000	0.982	0.999	0.991	1.000	1.000	Polytropic Efficiency =	0.8101	0.9641	0.8735	
5	70.0000	0.985	0.996	0.992	1.000	1.000	Percent Design Speed =	100.2	Discharge Valve Settings=	9.0	
7	90.0000	0.966	0.990	0.983	1.000	1.000	Cor. Nozzle Weight Flow=	207.5			
	90.0000	0.930	0.988	0.974	1.000	1.000	LE Check Flow/Noz.Flow =	0.9131	TE Check Flow/Noz.Flow =	0.8933	
							Assumed LE Flow Coeff. =	0.9500	Assumed TE Flow Coeff. =	0.9350	

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

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		ROTOR BLADE ROW # NASA TASK IV										
		BLADE ELEMENT PERFORMANCE RESULTS					BLADE ELEMENT PERFORMANCE RESULTS					
		POINT NUMBER	6	READING NUMBER	53	DATE	6710/1970					
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG MN CMBR LN	SUCT SURF INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS Y ANG VEL	INLET REL Y ANG VEL	
1		66.64	0.20	60.68	6.04	3.34	590.29	1476.88	585.76	2.01	1355.96	
2		65.130	0.68	59.61	5.69	3.26	609.66	1454.78	607.48	7.17	1320.49	
3		57.21	0.75	56.01	1.20	-3.26	765.62	1413.71	765.54	10.07	1188.48	
4		46.62	1.47	52.56	-5.94	-11.78	988.25	1436.22	985.08	25.20	1042.46	
5		42.86	0.62	49.71	-6.85	-13.64	1009.82	1366.65	993.77	10.73	923.90	
6		45.75	-0.22	47.11	-1.86	-9.02	801.79	1125.48	769.59	-2.91	789.85	
7		46.51	-0.94	46.13	0.38	-7.52	752.50	1065.19	715.17	-11.71	753.99	
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN LE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS Y ANG VEL	EXIT REL Y ANG VEL	
1		57.49	33.96	54.80	2.65	9.14	724.30	1116.07	599.11	403.51	940.12	
2		57.71	32.75	54.42	3.29	7.60	704.07	1106.87	590.82	379.99	934.79	
3		52.25	30.92	50.68	1.57	4.96	737.84	1033.88	592.81	379.06	817.42	
4		52.17	27.67	43.79	8.38	-5.55	670.97	968.87	594.12	311.51	765.20	
5		44.13	31.33	32.15	11.98	-1.27	710.46	844.81	605.34	368.51	587.14	
6		27.31	35.46	14.29	13.02	18.43	843.94	775.16	680.26	484.56	351.33	
7		22.60	40.70	6.00	14.00	23.91	844.44	697.79	631.94	543.49	263.09	
RADIAL POSITION		INLET MACH NO	ABS MACH NO	INLET MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY EFFICIENCY	POLY MOMEN RISE/ HEAT Y RISE	STAT PRESS RISE COEFF	
1		1.5798	0.542	1.358	1.023	0.129	0.026	0.8169	0.8279	0.360	0.288	
2		1.2806	0.561	1.339	0.973	0.078	-0.015	0.8883	0.8953	0.379	0.278	
3		1.19355	0.723	1.334	0.827	-0.033	-0.007	1.0492	1.0460	0.468	0.374	
4		1.6766	0.958	1.893	0.603	0.127	0.023	0.7530	0.7629	0.531	0.440	
5		934.63	0.990	1.342	0.608	0.144	0.027	0.7127	0.7229	0.452	0.493	
6		786.94	0.760	1.067	0.884	0.156	8.031	0.7945	0.8038	0.441	0.424	
7		742.29	0.707	1.001	0.884	0.182	0.036	0.7778	0.7875	0.461	0.425	
RADIAL POSITION		AT EXIT MACH NO	EXIT MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY EFFICIENCY	POLY MOMEN RISE/ HEAT Y RISE	STAT PRESS RISE COEFF	
1		1.4363	0.617	0.991	1.340	0.129	0.026	0.8169	0.8279	0.360	0.288	
2		1.1479	0.606	0.993	1.369	0.078	-0.015	0.8883	0.8953	0.379	0.278	
3		1.19648	0.641	0.898	1.508	-0.033	-0.007	1.0492	1.0460	0.468	0.374	
4		1.67672	0.590	0.852	1.684	0.127	0.023	0.7530	0.7629	0.531	0.440	
5		955.65	0.626	0.744	1.900	0.144	0.027	0.7127	0.7229	0.452	0.493	
6		835.89	0.750	0.689	2.210	0.156	8.031	0.7945	0.8038	0.441	0.424	
7		808.58	0.747	0.617	2.339	0.182	0.036	0.7778	0.7875	0.461	0.425	
RADIAL POSITION		HEIGHT INCHES	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS					
1		9.0000	1.605	1.182	1.595	1.165	Total Pressure Ratio =	1.3639	1.4082	1.4716	ROTOR DATA	
2		10.0000	1.588	1.156	1.586	1.159	Adiabatic Efficiency =	0.7079	0.7844	0.8310	ROTOR DATA	
3		30.0000	1.594	1.197	1.621	1.144	Polytropic Efficiency =	0.7204	0.7945	0.8595	FIXED INST. TRAV. INST.	
4		30.0000	1.346	1.099	1.385	1.114	Percent Design Speed =	100.0	Discharge Valve Setting=	30.0		
5		70.0000	1.332	1.119	1.294	1.106	Cor. Nozzle Weight Flow=	214.3				
6		90.0000	1.431	1.136	1.386	1.123	IE Check Flow/Noz.Flow =	0.9752	TE Check Flow/Noz.Flow =	0.9187		
7		95.0000	1.431	1.142	1.370	1.121	Assumed IE Flow Coeff. =	0.9850	Assumed TE Flow Coeff. =	0.9500		

OVERALL PERFORMANCE SUMMARY
 STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.3639 1.4082 1.4716
 0.7079 0.7844 0.8310
 0.7204 0.7945 0.8595
 Discharge Valve Setting= 30.0
 Cor. Nozzle Weight Flow= 214.3
 IE Check Flow/Noz.Flow = 0.9752
 Assumed IE Flow Coeff. = 0.9850
 TE Check Flow/Noz.Flow = 0.9187
 Assumed TE Flow Coeff. = 0.9500

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

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		STATOR BLADE ROW # NASA TASK IV										
		BLADE ELEMENT PERFORMANCE RESULTS					STATOR DATA					
		POINT NUMBER	6	READING NUMBER	53	DATE						
		6/10/1970										
RADIAL POSITION		REF INLET FLOW ANG	ARS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INGID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	
1		33.79	39.47	-5.68	728.14		605.12		404.97			
2		32.17	39.11	-6.94	716.29		606.29		381.37			
3		29.97	39.01	-10.04	782.31		684.04		376.69			
4		25.47	39.80	-14.33	719.41		647.61		308.41			
5		28.71	40.86	-12.15	755.70		658.52		360.72			
6		32.54	42.22	-9.68	878.73		732.25		467.19			
7		37.88	42.76	-4.88	859.71		670.70		521.80			
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN YE ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	
1		2.15	13.28	-11.13	13.28	31.64	619.15	618.70	23.24	23.24		
2		-0.32	9.78	-10.10	9.78	32.49	685.63	685.50	-3.79	-3.79		
3		1.33	10.20	-8.87	10.20	27.64	703.36	702.88	16.30	16.30		
4		-2.04	6.71	-8.75	6.71	27.50	662.75	661.59	-23.52	-23.52		
5		-2.31	9.10	-9.10	9.10	31.03	669.11	667.14	-26.95	-26.95		
6		1.16	13.74	-10.58	13.74	31.37	806.85	803.70	16.33	16.33		
7		0.71	13.07	-12.56	13.07	37.17	782.01	779.43	9.69	9.69		
RADIAL POSITION		ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	POLY EFFICIENCY	MOMEN MEAS T RISE	STAT PRESS RISE COEFF	CHI	
1		0.621	0.617	1.131	1.022	0.195	0.064	0.0512	0.034	0.012	0.1013	
2		0.683	0.683	1.028	1.028	0.079	0.026	0.4687	0.034	0.034	0.038	
3		0.656	0.656	1.022	1.022	0.106	0.032	0.3398	0.056	0.056	0.062	
4		0.669	0.669	1.013	1.013	0.172	0.049	0.2646	0.037	0.037	0.041	
5		0.784	0.784	1.098	1.098	0.096	0.025	0.1787	0.033	0.033	0.047	
6		0.762	0.762	1.162	1.162	0.100	0.024	-0.0422	-0.005	-0.005	0.250	
7		0.528	0.528	1.540	1.5230	0.115	0.027	-0.0807	-0.011	-0.011	0.229	
RADIAL POSITION		PERCENT ACCELERATION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	LOSS COEFF	POLY EFFICIENCY	ABD EFFICIENCY	ADD EFFICIENCY	POLY MOMEN RISE/ RISE COEFF	STAT PRESS RISE COEFF
1		8.0000	0.936	0.979	0.955	1.000	0.195	0.064	0.0512	0.034	0.034	0.012
2		10.0000	0.989	0.996	0.982	1.000	0.079	0.026	0.4687	0.034	0.034	0.034
3		30.0000	0.961	0.992	0.971	1.000	0.106	0.032	0.3398	0.056	0.056	0.056
4		50.0000	0.969	1.005	0.959	1.000	0.172	0.049	0.2646	0.037	0.037	0.037
5		70.0000	0.948	0.992	0.975	1.000	0.096	0.025	0.1787	0.033	0.033	0.033
6		90.0000	0.935	0.993	0.965	1.000	0.100	0.024	-0.0422	-0.005	-0.005	-0.005
7		95.0000	0.934	0.983	0.962	1.000	0.115	0.027	-0.0807	-0.011	-0.011	-0.011
OVERALL PERFORMANCE SUMMARY												
STAGE DATA STATOR DATA STATOR DATA												
FIXED INST. FIXED INST. TRAV. INST.												
PERFORMANCE PARAMETERS												
Total Pressure Ratio = 1.3639 0.9685 0.9576												
Polytropic Efficiency = 0.7204 0.9067 0.3259												
Percent Design Speed = 100.0												
Cor. Nozzle Weight Flow = 214.4												
Diacharge Valve Setting = 30.0												
LE Check Flow/Noz.Flow = 0.9235 TE Check Flow/Noz.Flow = 0.8902												
Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350												

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ROTOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 26		READING NUMBER 90		DATE 6/18/87											
RADIAL POSITION	1	REL INLET FLOW ANG	67.80	ABS INLET FLOW ANG	-0.23	CHBR LN LE ANGLE	60.60	INCID ANG MN CMR LN	7.20	INCID ANG SUCT SURF	4.50	INLET REL VELOCITY	1470.14	INLET AX VELOCITY	555.15	INLET ABS TANG VEL	1360.29	INLET REL TANG VEL	1360.29
	2	REL INLET FLOW ANG	68.78	ABS INLET FLOW ANG	-0.96	CHBR LN LE ANGLE	59.61	INCID ANG MN CMR LN	7.17	INCID ANG SUCT SURF	4.24	INLET REL VELOCITY	1456.39	INLET AX VELOCITY	573.82	INLET ABS TANG VEL	1337.72	INLET REL TANG VEL	1337.72
	3	REL INLET FLOW ANG	59.91	ABS INLET FLOW ANG	0.90	CHBR LN LE ANGLE	56.01	INCID ANG MN CMR LN	3.89	INCID ANG SUCT SURF	-0.66	INLET REL VELOCITY	693.17	INLET AX VELOCITY	693.17	INLET ABS TANG VEL	1191.36	INLET REL TANG VEL	1191.36
	4	REL INLET FLOW ANG	45.96	ABS INLET FLOW ANG	0.75	CHBR LN LE ANGLE	52.56	INCID ANG MN CMR LN	6.69	INCID ANG SUCT SURF	-12.44	INLET REL VELOCITY	1468.79	INLET AX VELOCITY	1819.60	INLET ABS TANG VEL	1054.40	INLET REL TANG VEL	1054.40
	5	REL INLET FLOW ANG	42.33	ABS INLET FLOW ANG	0.76	CHBR LN LE ANGLE	49.71	INCID ANG MN CMR LN	7.38	INCID ANG SUCT SURF	-14.17	INLET REL VELOCITY	1025.51	INLET AX VELOCITY	1811.21	INLET ABS TANG VEL	921.22	INLET REL TANG VEL	921.22
	6	REL INLET FLOW ANG	45.31	ABS INLET FLOW ANG	0.57	CHBR LN LE ANGLE	47.11	INCID ANG MN CMR LN	-1.89	INCID ANG SUCT SURF	5.46	INLET REL VELOCITY	1191.11	INLET AX VELOCITY	770.91	INLET ABS TANG VEL	779.28	INLET REL TANG VEL	779.28
	7	REL INLET FLOW ANG	46.31	ABS INLET FLOW ANG	-0.37	CHBR LN LE ANGLE	46.13	INCID ANG MN CMR LN	0.18	INCID ANG SUCT SURF	57.72	INLET REL VELOCITY	1058.92	INLET AX VELOCITY	713.47	INLET ABS TANG VEL	746.93	INLET REL TANG VEL	746.93
RADIAL POSITION	1	REL EXIT FLOW ANG	54.89	ABS EXIT FLOW ANG	54.26	CHBR LN TE ANGLE	54.80	REL DEV ANG TE	2.09	REL TURN ANGLE	10.90	EXIT REL VELOCITY	842.159	EXIT AX VELOCITY	459.66	EXIT ABS TANG VEL	704.98	EXIT REL TANG VEL	704.98
	2	REL EXIT FLOW ANG	56.02	ABS EXIT FLOW ANG	49.10	CHBR LN TE ANGLE	54.42	REL DEV ANG TE	1.69	REL TURN ANGLE	18.77	EXIT REL VELOCITY	788.08	EXIT AX VELOCITY	498.46	EXIT ABS TANG VEL	739.47	EXIT REL TANG VEL	739.47
	3	REL EXIT FLOW ANG	52.13	ABS EXIT FLOW ANG	44.07	CHBR LN TE ANGLE	50.68	REL DEV ANG TE	1.45	REL TURN ANGLE	7.68	EXIT REL VELOCITY	892.69	EXIT AX VELOCITY	530.85	EXIT ABS TANG VEL	682.57	EXIT REL TANG VEL	682.57
	4	REL EXIT FLOW ANG	49.06	ABS EXIT FLOW ANG	38.57	CHBR LN TE ANGLE	43.79	REL DEV ANG TE	5.87	REL TURN ANGLE	-3.79	EXIT REL VELOCITY	842.34	EXIT AX VELOCITY	545.16	EXIT ABS TANG VEL	642.01	EXIT REL TANG VEL	642.01
	5	REL EXIT FLOW ANG	44.30	ABS EXIT FLOW ANG	40.51	CHBR LN TE ANGLE	32.15	REL DEV ANG TE	12.15	REL TURN ANGLE	-2.97	EXIT REL VELOCITY	730.91	EXIT AX VELOCITY	522.14	EXIT ABS TANG VEL	509.62	EXIT REL TANG VEL	509.62
	6	REL EXIT FLOW ANG	32.77	ABS EXIT FLOW ANG	44.28	CHBR LN TE ANGLE	14.29	REL DEV ANG TE	18.48	REL TURN ANGLE	12.54	EXIT REL VELOCITY	620.93	EXIT AX VELOCITY	516.36	EXIT ABS TANG VEL	332.36	EXIT REL TANG VEL	332.36
	7	REL EXIT FLOW ANG	24.50	ABS EXIT FLOW ANG	49.68	CHBR LN TE ANGLE	8.09	REL DEV ANG TE	16.15	REL TURN ANGLE	24.83	EXIT REL VELOCITY	552.69	EXIT AX VELOCITY	493.61	EXIT ABS TANG VEL	224.99	EXIT REL TANG VEL	224.99
RADIAL POSITION	1	MOTOR SPD AT INLET	1358.05	INLET REL MACH NO	0.511	AXIAL VEL RATIO	0.928	SOLIDITY	17349	LOSS COEFFICIENT	0.226	FIXED TOY PRESS RATIO	1.868	FIXED TOY TEMP RATIO	1.253	STAGE DATA FIXED INST.	0.388	ROTOR DATA TRAV. INST.	1.698
	2	MOTOR SPD AT INLET	1329.13	INLET REL MACH NO	0.527	AXIAL VEL RATIO	1.334	SOLIDITY	17369	LOSS COEFFICIENT	0.174	FIXED TOY PRESS RATIO	1.887	FIXED TOY TEMP RATIO	1.242	STAGE DATA FIXED INST.	0.404	ROTOR DATA TRAV. INST.	0.9164
	3	MOTOR SPD AT INLET	1139.62	INLET REL MACH NO	0.646	AXIAL VEL RATIO	0.766	SOLIDITY	17508	LOSS COEFFICIENT	-0.047	FIXED TOY PRESS RATIO	1.950	FIXED TOY TEMP RATIO	1.189	STAGE DATA FIXED INST.	0.813	ROTOR DATA TRAV. INST.	1.6387
	4	MOTOR SPD AT INLET	1067.72	INLET REL MACH NO	1.000	AXIAL VEL RATIO	0.535	SOLIDITY	17588	LOSS COEFFICIENT	0.092	FIXED TOY PRESS RATIO	1.864	FIXED TOY TEMP RATIO	1.155	STAGE DATA FIXED INST.	0.8236	ROTOR DATA TRAV. INST.	0.9164
	5	MOTOR SPD AT INLET	934.88	INLET REL MACH NO	1.000	AXIAL VEL RATIO	0.518	SOLIDITY	17968	LOSS COEFFICIENT	0.055	FIXED TOY PRESS RATIO	2.2178	FIXED TOY TEMP RATIO	1.518	STAGE DATA FIXED INST.	0.8558	ROTOR DATA TRAV. INST.	0.660
	6	MOTOR SPD AT INLET	786.88	INLET REL MACH NO	0.757	AXIAL VEL RATIO	0.679	SOLIDITY	27339	LOSS COEFFICIENT	0.132	FIXED TOY PRESS RATIO	1.479	FIXED TOY TEMP RATIO	1.140	STAGE DATA FIXED INST.	0.648	ROTOR DATA TRAV. INST.	0.660
	7	MOTOR SPD AT INLET	742.33	INLET REL MACH NO	0.705	AXIAL VEL RATIO	0.692	SOLIDITY	27339	LOSS COEFFICIENT	0.143	FIXED TOY PRESS RATIO	1.472	FIXED TOY TEMP RATIO	1.138	STAGE DATA FIXED INST.	0.602	ROTOR DATA TRAV. INST.	0.691
RADIAL POSITION	1	MOTOR SPD AT EXIT	1343.74	EXIT REL MACH NO	0.649	AXIAL VEL RATIO	0.594	LOSS PARAM	0.046	EFFICIENCY	0.7721	POLY EFFICIENCY	0.7911	STAGE DATA FIXED INST.	0.388	ROTOR DATA TRAV. INST.	1.6387		
	2	MOTOR SPD AT EXIT	1314.86	EXIT REL MACH NO	0.636	AXIAL VEL RATIO	0.745	LOSS PARAM	0.035	EFFICIENCY	0.8233	POLY EFFICIENCY	0.8374	STAGE DATA FIXED INST.	0.404	ROTOR DATA TRAV. INST.	0.9164		
	3	MOTOR SPD AT EXIT	1198.54	EXIT REL MACH NO	0.627	AXIAL VEL RATIO	0.734	LOSS PARAM	-0.010	EFFICIENCY	1.0534	POLY EFFICIENCY	1.0488	STAGE DATA FIXED INST.	0.813	ROTOR DATA TRAV. INST.	1.6387		
	4	MOTOR SPD AT EXIT	1078.78	EXIT REL MACH NO	0.602	AXIAL VEL RATIO	0.727	LOSS PARAM	0.018	EFFICIENCY	0.8616	POLY EFFICIENCY	0.8699	STAGE DATA FIXED INST.	0.8236	ROTOR DATA TRAV. INST.	0.9164		
	5	MOTOR SPD AT EXIT	925.70	EXIT REL MACH NO	0.597	AXIAL VEL RATIO	0.634	LOSS PARAM	0.010	EFFICIENCY	0.9450	POLY EFFICIENCY	0.9499	STAGE DATA FIXED INST.	0.648	ROTOR DATA TRAV. INST.	0.660		
	6	MOTOR SPD AT EXIT	835.93	EXIT REL MACH NO	0.632	AXIAL VEL RATIO	0.548	LOSS PARAM	0.025	EFFICIENCY	0.8478	POLY EFFICIENCY	0.8558	STAGE DATA FIXED INST.	0.660	ROTOR DATA TRAV. INST.	0.660		
	7	MOTOR SPD AT EXIT	806.62	EXIT REL MACH NO	0.669	AXIAL VEL RATIO	0.489	LOSS PARAM	0.028	EFFICIENCY	0.8473	POLY EFFICIENCY	0.8554	STAGE DATA FIXED INST.	0.691	ROTOR DATA TRAV. INST.	0.691		
OVERALL PERFORMANCE SUMMARY																			
PERFORMANCE PARAMETERS										STAGE DATA ROTOR DATA									
Total Pressure Ratio = 1.6119										FIXED INST. FIXED INST. TRAV. INST.									
Adiabatic Efficiency = 0.8113										1.6119 1.6387 1.6908									
Polytropic Efficiency = 0.8236										0.8113 0.8413 0.9100									
Percent Design Speed = 100.0										0.8236 0.8520 0.9164									
Cor. Nozzle Weight Flow = 207.1										Discharge Valve Settings = 9.0									
LE Check Flow/Noz.Flow = 1.0047										TE Check Flow/Noz.Flow = 0.9029									
Assumed LE Flow Coeff. = 0.9850										Assumed TE Flow Coeff. = 0.9500									

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		STATOR BLADE RDH - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER 26		READING NUMBER 90		DATE 6/10/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG	INCID ANGLE	INCID ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		54.11	39.47	14.64	791.24	791.24	463.83	463.83	541.04	541.04	
2		48.54	35.11	9.43	770.58	770.58	510.18	510.18	577.47	577.47	
3		42.14	30.01	3.13	765.69	765.69	567.47	567.47	513.48	513.48	
4		36.10	24.86	-3.78	731.95	731.95	590.19	590.19	430.44	430.44	
5		37.83	40.86	3.03	715.65	715.65	562.28	562.28	436.65	436.65	
6		41.63	42.22	0.59	737.50	737.50	546.19	546.19	485.52	485.52	
7		47.10	42.78	4.34	768.95	768.95	518.92	518.92	558.42	558.42	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN LE ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1		21.43	-11.13	13.56	51.69	563.01	563.01	563.30	23.86	23.86	
2		21.93	-10.19	13.03	45.61	580.14	580.14	579.31	29.68	29.68	
3		0.34	-8.87	9.21	43.80	581.82	581.82	581.57	3.48	3.48	
4		21.53	-8.75	6.22	38.64	544.89	544.89	543.76	24.06	24.06	
5		21.99	-9.10	7.11	39.82	524.07	524.07	522.64	18.17	18.17	
6		20.59	-10.58	9.99	42.23	503.33	503.33	501.75	25.18	25.18	
7		-3.39	-22.36	9.01	58.49	473.62	473.62	471.30	27.58	27.58	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	AXIAL VEL RATIO	INLET REL MACH NO	LOSS COEFFICIENT	LOSS PARAM	EFFICIENCY	POLY MOMEN MEAS	RISE COEFF	STAT PRESS	
1		0.692	1.5239	0.134	0.134	0.044	0.9102	0.7419	0.269	0.269	
2		0.643	1.5446	0.103	0.103	0.033	0.7419	0.8061	0.296	0.296	
3		0.651	1.6310	0.052	0.052	0.016	0.8061	0.8428	0.311	0.311	
4		0.634	1.7420	0.040	0.040	0.012	0.8428	0.9144	0.351	0.351	
5		0.622	1.8800	0.041	0.041	0.011	0.9144	0.8026	0.398	0.398	
6		0.642	2.0510	0.072	0.072	0.018	0.8026	0.6276	0.400	0.400	
7		0.668	2.0980	0.092	0.092	0.022	0.6276		0.356	0.356	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	TRAV TOT PRESS RATIO	FIXED TOY PRESS RATIO	LOSS	FIXED TOT TEMP RATIO	LOSS PARAM	EFFICIENCY	POLY MOMEN MEAS	RISE COEFF	
1		0.461	0.977	0.966	1.000	1.000	0.044	0.9102	0.7419	0.269	
2		0.477	0.995	0.975	1.000	1.000	0.033	0.7419	0.8061	0.296	
3		0.489	0.989	0.987	1.000	1.000	0.016	0.8061	0.8428	0.311	
4		0.464	0.999	0.999	1.000	1.000	0.012	0.8428	0.9144	0.351	
5		0.449	0.995	0.990	1.000	1.000	0.011	0.9144	0.8026	0.398	
6		0.430	0.995	0.982	1.000	1.000	0.018	0.8026	0.6276	0.400	
7		0.404	0.983	0.975	1.000	1.000	0.022	0.6276		0.356	
OVERALL PERFORMANCE SUMMARY											
STAGE DATA STATOR DATA STATOR DATA											
FIXED INST. FIXED INST. TRAV. INST.											
Total Pressure Ratio = 1.6119 0.9836 0.9731											
Polytropic Efficiency = 0.8236 0.9667 0.9009											
Percent Design Speed = 100.0 Discharge Valve Setting= 9.0											
Cor. Nozzle Weight Flow= 207.1											
IE Check Flow/Noz.Flow = 0.9077 TE Check Flow/Noz.Flow = 0.8649											
Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350											

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW • NASA TASK IV

BLADE ELEMENT PERFORMANCE RESULTS			POINT NUMBER 27		READING NUMBER 91		DATE 6/18/1970		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL
1	66.81	0.19	60.69	8.51	586.09	1478.72	581.59	1.96	1357.62
2	69.60	-0.55	59.61	5.99	607.93	1467.12	605.77	-5.85	1335.47
3	58.97	0.53	56.03	2.96	717.95	1392.59	717.98	6.69	1193.27
4	45.92	0.63	52.55	-12.48	1027.34	1471.46	1244.52	11.21	1057.70
5	41.66	0.94	49.71	-6.64	871.75	1385.04	1021.97	16.84	918.88
6	45.10	0.78	47.13	-2.81	806.96	1123.89	774.46	10.56	777.30
7	45.82	-0.59	46.13	-8.13	767.39	1073.45	729.38	-7.49	750.65
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN YE ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
1	50.10	0.78	54.80	10.71	774.92	929.48	517.78	374.69	770.52
2	56.41	0.59	54.42	9.19	743.69	959.41	526.34	523.70	792.63
3	58.74	0.69	50.68	6.63	733.54	922.03	551.09	483.91	713.97
4	51.00	0.69	43.79	-5.108	679.23	868.93	546.79	402.76	675.22
5	45.48	0.91	32.13	-3.152	674.56	739.62	517.74	430.30	526.47
6	38.76	1.22	14.29	12.35	788.77	662.25	550.79	482.48	354.39
7	24.18	0.72	8.00	28.65	784.61	587.58	571.36	482.48	236.16
RADIAL POSITION	RECTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF
1	1359.57	0.537	1.359	0.898	0.041	0.7883	0.8051	0.486	0.573
2	1329.61	0.598	1.347	0.869	0.028	0.8402	0.8606	0.482	0.573
3	1199.76	0.669	1.259	0.768	-0.012	1.0715	1.0656	0.466	0.596
4	1060.51	1.000	1.439	0.534	0.020	0.8312	0.8405	0.490	0.637
5	935.72	1.000	1.336	0.507	0.105	0.8688	0.8749	0.545	0.683
6	787.86	0.758	1.052	0.711	0.136	0.8388	0.8472	0.506	0.614
7	743.16	0.720	1.007	0.721	0.143	0.8385	0.8467	0.573	0.606
RADIAL POSITION	RECTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED INST. TRAV. INST.	ROTOR DATA ROTOR DATA
1	1345.21	0.642	0.771	1.3340	1.233	1.3340	1.233	1.5636	1.5872
2	1316.33	0.624	0.779	1.3080	1.223	1.3080	1.223	0.8045	0.8332
3	1197.88	0.695	0.768	1.5080	1.179	1.5080	1.179	0.8164	0.8437
4	1077.98	0.586	0.750	1.6840	1.146	1.6840	1.146	100.1	Discharge Valve Settings= 11.0
5	958.87	0.584	0.648	1.9060	1.133	1.9060	1.133	209.8	
6	830.87	0.644	0.577	2.2370	1.158	2.2370	1.158		
7	807.52	0.684	0.512	2.3390	1.149	2.3390	1.149		
OVERALL PERFORMANCE SUMMARY									
RADIAL POSITION	PERCENT REACTOR PRESS RATIO	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA	ROTOR DATA	ROTOR DATA
1	5.0000	1.989	1.219	1.806	1.233	Total Pressure Ratio =	FIXED INST. FIXED INST.	FIXED INST. TRAV. INST.	ROTOR DATA
2	10.0000	1.857	1.219	1.834	1.223	Adiabatic Efficiency =	1.5636	1.5872	1.6475
3	30.0000	1.824	1.187	1.446	1.179	Polytropic Efficiency =	0.8045	0.8332	0.9467
4	50.0000	1.523	1.138	1.146	1.146	Percent Design Speed =	100.1		
5	70.0000	1.458	1.107	1.143	1.133	Cor. Nozzle Weight Flow=	209.8		
6	90.0000	1.473	1.159	1.158	1.158	TE Check Flow/Noz.Flow =	0.9916		0.9004
7	95.0000	1.534	1.149	1.146	1.133	Assumed LE Flow Coeff. =	0.9550		0.9500
Assumed TE Flow Coeff. = 0.9500									

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

061870

STATOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS										STATOR DATA			
		POINT NUMBER	27	READING NUMBER	91	DATE	6/18/1970								
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG HN	INCID ANG LN SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		47.82	39.47	8.35	778.34	522.64	522.64	522.64	576.77	576.77	522.64	522.64	522.64	576.77	576.77
2		44.28	39.11	5.17	752.79	539.07	539.07	539.07	525.60	525.60	539.07	539.07	539.07	525.60	525.60
3		39.33	39.01	0.32	763.18	590.10	590.10	590.10	483.45	483.45	590.10	590.10	590.10	483.45	483.45
4		33.98	37.89	45.84	715.32	592.04	592.04	592.04	398.76	398.76	592.04	592.04	592.04	398.76	398.76
5		37.09	40.86	37.77	702.24	421.20	421.20	421.20	465.19	465.19	421.20	421.20	421.20	465.19	465.19
6		39.54	43.22	33.68	754.10	583.96	583.96	583.96	465.19	465.19	583.96	583.96	583.96	465.19	465.19
7		44.72	42.76	1.96	786.99	553.93	553.93	553.93	548.56	548.56	553.93	553.93	553.93	548.56	548.56
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	INCID ANG LN	INCID ANG LN SUCT SURF	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		2.23	13.13	13.36	565.72	565.72	565.72	565.72	22.03	22.03	565.72	565.72	565.72	22.03	22.03
2		1.12	10.10	11.22	602.39	602.39	602.39	602.39	11.80	11.80	602.39	602.39	602.39	11.80	11.80
3		0.17	8.87	8.78	595.22	595.22	595.22	595.22	-1.76	-1.76	595.22	595.22	595.22	-1.76	-1.76
4		3.35	28.79	5.48	549.02	549.02	549.02	549.02	32.05	32.05	549.02	549.02	549.02	32.05	32.05
5		2.57	29.10	6.53	539.22	539.22	539.22	539.22	24.09	24.09	539.22	539.22	539.22	24.09	24.09
6		0.50	10.58	10.08	561.02	561.02	561.02	561.02	54.89	54.89	561.02	561.02	561.02	54.89	54.89
7		3.27	32.36	9.09	524.14	524.14	524.14	524.14	29.83	29.83	524.14	524.14	524.14	29.83	29.83
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR										
1		0.645	1.082	1.082	0.507										
2		0.632	1.117	1.117	0.421										
3		0.622	1.009	1.009	0.414										
4		0.620	0.925	0.925	0.404										
5		0.610	0.965	0.965	0.399										
6		0.658	0.958	0.958	0.351										
7		0.688	0.942	0.942	0.506										
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS POLY MOMEN RISE/ RISE	STAY PRESS RISE COEFF									
1		0.466	1.5230	0.133	0.044	0.237									
2		0.500	1.5440	0.067	0.057	0.266									
3		0.504	1.6310	0.058	0.018	0.264									
4		0.470	1.7420	0.039	0.011	0.264									
5		0.463	1.6800	0.035	0.009	0.347									
6		0.482	2.0510	0.065	0.016	0.328									
7		0.450	2.0980	0.096	0.023	0.293									
RADIAL POSITION	PERCENT DEVIATION	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY										
1	9.0000	0.944	0.975	1.000	STAGE DATA STATOR DATA STATOR DATA										
2	10.0000	0.981	0.994	1.000	FIXED INST. FIXED INST. TRAV. INST.										
3	30.0000	0.972	0.980	1.000	Total Pressure Ratio = 1.5626 0.9851 0.9744										
4	50.0000	0.982	0.999	1.000	Polytropic Efficiency = 0.8164 0.9676 ---										
5	70.0000	0.991	0.999	1.000	Percent Design Speed = 100.1 Discharge Valve Setting=11.0										
6	90.0000	0.974	0.992	1.000	Cor. Nozzle Weight Flow= 209.8										
7	95.0000	0.930	0.981	1.000	IE Check Flow/Noz.Flow = 0.951 TE Check Flow/Noz.Flow = 0.8831										
					Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9830										

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

061870

		ROTOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS					POINT NUMBER 29 READING NUMBER 93 DATE 6/18/2970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LM LE ANGLE	INCID ANG MN CHBR LM	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL
1	65.41	0.23	60.09	4.84	2.11	685.35	1493.23	620.54	2.50	335.98	1324.77
2	64.50	0.34	59.61	4.89	1.80	633.99	1468.65	631.75	3.79	335.98	1324.77
3	57.98	0.59	56.01	1.97	-2.49	748.19	1405.22	745.13	7.61	119.39	1049.99
4	45.69	1.01	52.56	60.87	-12.71	1028.17	1469.45	1025.05	18.07	1049.99	922.00
5	42.28	0.73	49.71	57.43	-14.22	1028.31	1381.06	1013.98	12.98	922.00	777.83
6	44.85	0.69	47.11	-2.26	-9.92	814.77	1126.44	781.97	9.40	777.83	748.03
7	45.82	0.43	46.18	-0.13	0.12	764.72	1069.73	726.86	5.47	748.03	748.03
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LM TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL
1	58.88	32.96	54.00	4.00	6.53	697.09	1129.53	583.24	378.23	965.90	965.90
2	57.16	32.41	54.42	3.74	6.34	695.45	1111.46	585.77	371.88	943.40	943.40
3	52.64	30.97	50.88	1.96	5.34	731.16	1032.79	626.71	376.18	820.75	820.75
4	52.51	25.95	43.79	8.72	-0.82	665.19	988.86	601.62	292.72	784.40	784.40
5	45.03	31.43	32.15	12.88	-2.15	694.73	840.53	593.62	362.38	593.62	593.62
6	29.51	35.03	14.29	14.22	16.34	829.46	774.18	672.06	471.18	365.02	365.02
7	25.00	40.23	8.00	17.00	20.82	816.15	691.21	614.95	520.14	286.74	286.74
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS LOSS PARAM	EFFICIENCY ADB	POLY EFFICIENCY	MOMEN MEAS Y	RISE RISE	STAY PRESS
1	1359.49	0.577	1.377	0.948	1.3340	0.160	0.1031	0.7854	0.279	0.260	0.260
2	1128.55	0.586	1.357	0.927	1.3369	0.085	0.1016	0.8853	0.279	0.279	0.279
3	1199.00	0.698	1.315	0.841	1.5080	-0.033	-0.007	1.0488	1.0488	1.0488	1.0488
4	1059.06	1.000	1.429	0.587	1.6840	0.129	0.1023	0.7361	0.7361	0.7361	0.7361
5	934.98	1.000	1.343	0.585	1.9060	0.135	0.1025	0.7266	0.7266	0.7266	0.7266
6	787.23	0.766	1.058	0.859	2.2470	0.160	0.1032	0.7893	0.7893	0.7893	0.7893
7	742.56	0.715	1.001	0.848	2.3390	0.123	0.1043	0.7203	0.7203	0.7203	0.7203
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	DIFFUSION FACTOR	PERFORMANCE PARAMETERS	OVERALL PERFORMANCE SUMMARY					
1	1344.11	0.597	0.968	0.364	Total Pressure Ratio =	1.3633	1.3008	1.4530			
2	1117.28	0.598	0.958	0.382	Adiabatic Efficiency =	0.7101	0.7138	0.9355			
3	1199.93	0.636	0.898	0.468	Polytropic Efficiency =	0.7226	0.7043	0.9294			
4	1077.12	0.589	0.870	0.525	Percent Design Speed =	100.1	Discharge Valve Setting=	30.0			
5	954.01	0.612	0.738	0.554	Cor. Nozzle Weight Flow=	213.3					
6	836.20	0.738	0.688	0.440							
7	800.88	0.722	0.611	0.382							
RADIAL POSITION	PERCENT ENTRANCE PRESS RATIO	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	STAGE DATA ROTOR DATA ROTOR DATA					
1	9.0000	1.566	1.169	1.167	1.167	FIXED INST. FIXED INST. TRAV. INST.					
2	10.0000	1.572	1.159	1.159	1.159						
3	30.0000	1.600	1.142	1.142	1.142						
4	50.0000	1.334	1.059	1.124	1.124						
5	70.0000	1.314	1.059	1.104	1.104						
6	90.0000	1.415	1.109	1.122	1.122						
7	95.0000	1.377	1.124	1.119	1.119						

IE Check Flow/Noz.Flow = 0.9895
 Assumed IE Flow Coeff. = 0.9850
 TE Check Flow/Noz.Flow = 0.9145
 Assumed TE Flow Coeff. = 0.9500

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW # NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 29		READING NUMBER 93		DATE 6/18/970					
RADIAL POSITION	REL INLET FLOW ANG	ARS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ARS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL			
1	32.80	32.80	39.47	6.67	700.77	589.05	589.05	589.05	379.60				
2	31.84	31.84	38.11	7.27	707.51	601.03	601.03	601.03	373.23				
3	29.04	29.04	39.01	5.97	774.73	676.98	676.98	676.98	375.82				
4	23.82	23.82	39.80	15.98	719.40	889.81	889.81	889.81	289.81				
5	28.85	28.85	40.86	12.01	739.91	643.92	643.92	643.92	354.72				
6	32.16	32.16	42.22	10.06	663.54	722.55	722.55	722.55	434.29				
7	37.47	37.47	42.78	5.29	630.67	651.60	651.60	651.60	499.39				
RADIAL POSITION	REL EXIT FLOW ANG	ARS EXIT FLOW ANG	CMBR LN YE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ARS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL			
1	0.71	0.71	11.33	41.88	32.09	611.41	611.36	611.36	7.60				
2	2.08	2.08	10.10	8.02	33.92	685.63	685.15	685.15	24.86				
3	1.30	1.30	8.87	10.17	27.74	696.63	696.17	696.17	15.79				
4	4.25	4.25	8.75	4.50	28.07	650.85	648.15	648.15	18.13				
5	2.44	2.44	8.10	6.66	31.29	651.54	648.56	648.56	27.63				
6	1.55	1.55	10.58	12.13	30.61	793.84	791.10	791.10	21.42				
7	0.67	0.67	12.38	13.03	36.60	750.09	747.62	747.62	8.71				
RADIAL POSITION	R8TOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	YBT PRESS LOSS PARAM	ADB EFFICIENCY	POLY EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAY PRESS RISE COEFF			
1	0.603	0.603	1.038	1.5230	0.199	0.065	0.1742	0.9788	0.1742	0.037			
2	0.609	0.609	1.140	1.5440	0.054	0.018	0.3704	0.3704	0.062	0.052			
3	0.677	0.677	1.028	1.6310	0.086	0.026	0.2791	0.2791	0.046	0.046			
4	0.636	0.636	0.987	1.7420	0.127	0.036	0.2499	0.2499	0.048	0.048			
5	0.553	0.553	1.009	1.8800	0.092	0.074	0.0834	0.0834	0.011	0.011			
6	0.771	0.771	1.095	2.0510	0.094	0.023	0.2358	0.2358	0.036	0.036			
7	0.736	0.736	1.147	2.0980	0.109	0.026							
RADIAL POSITION	R8TOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	PERFORMANCE PARAMETERS					
1	0.952	0.952	0.997	0.957	1.080	0.997	1.080	STAGE DATA STATOR DATA STATOR DATA					
2	1.000	1.000	0.997	0.988	1.080	0.997	1.080	FIXED INST. FIXED INST. TRAV. INST.					
3	0.983	0.983	0.996	0.971	1.080	0.996	1.080	Total Pressure Ratio =	1.3633	0.9739	0.9631		
4	0.953	0.953	0.988	0.977	1.000	0.988	1.000	Polytropic Efficiency =	0.7226	0.9213	0.3782		
5	0.944	0.944	0.988	0.969	1.000	0.988	1.000	Percent Design Speed =	100.1	Discharge Valve Setting=	30.0		
6	0.944	0.944	0.997	0.969	1.000	0.997	1.000	Cor. Nozzle Weight Flow=	213.3				
7	0.951	0.951	0.988	0.967	1.000	0.988	1.000	LE Check Flow/Noz.Flow =	0.9193	TE Check Flow/Noz.Flow =	0.8835		
										Assumed LE Flow Coeff. =	0.9500	Assumed TE Flow Coeff. =	0.9350
OVERALL PERFORMANCE SUMMARY													

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW " NASR TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS					6/26/1970				
		POINT NUMBER 18		READING NUMBER 149		DATE					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN	INCID ANG LN	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	67.77	-0.39	60.60	7.17	4.47	4.47	861.36	1474.09	557.04	-3.79	1363.03
2	64.80	-0.93	59.61	7.19	4.16	4.16	875.86	1457.15	573.77	-9.28	1338.56
3	59.87	0.31	56.01	3.86	-0.60	-0.60	694.06	1382.77	694.03	3.79	1195.86
4	45.78	1.01	52.56	-6.78	-12.62	-12.62	1825.63	1468.17	1022.52	17.97	1050.68
5	42.47	0.50	49.71	7.24	-14.03	-14.03	1826.67	1382.95	1012.41	8.90	926.59
6	45.42	0.28	47.11	-1.69	-9.35	-9.35	804.81	1123.44	772.45	3.82	783.84
7	46.23	-0.47	46.13	0.10	7.80	7.80	854.72	1063.20	717.36	-5.91	748.88
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG	REL TURN ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	58.73	55.53	54.50	0.93	12.04	12.04	813.58	817.84	459.91	669.85	673.02
2	53.37	49.75	54.42	0.95	11.42	11.42	875.66	851.67	500.45	591.24	724.75
3	51.68	44.61	50.68	1.00	8.19	8.19	847.12	857.91	531.83	524.55	673.03
4	48.87	39.45	43.79	5.08	-3.09	-3.09	808.32	832.67	547.86	450.61	627.10
5	43.72	41.08	32.15	11.57	-1.25	-1.25	895.58	729.29	523.28	508.33	508.33
6	32.78	44.94	14.29	18.49	12.64	12.64	829.60	612.81	509.55	508.54	328.11
7	24.36	50.16	8.00	16.36	21.87	21.87	870.28	546.83	488.90	585.93	221.39
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	INLET REL MACH NO	EXIT REL MACH NO	TOT PRESS LOSS	AUX EFFICIENCY	POLY EFFICIENCY	MOMEN RISE	STAT PRESS RISE
1	1344.87	0.513	1.346	0.826	1.346	1.346	0.235	0.7667	0.7865	0.394	0.394
2	1316.00	0.643	0.731	1.3890	0.731	0.731	0.180	0.8198	0.8355	0.411	0.411
3	1197.58	0.633	0.727	1.5080	0.727	0.727	-0.049	1.0549	1.0502	0.529	0.529
4	1077.71	0.611	0.717	1.6840	0.717	0.717	0.094	1.0620	0.8705	0.590	0.590
5	956.53	0.602	0.628	1.9060	0.628	0.628	0.054	0.9193	0.9240	0.650	0.650
6	836.66	0.630	0.532	2.2170	0.532	0.532	0.132	0.8493	0.8575	0.671	0.671
7	807.32	0.668	0.475	2.3390	0.475	0.475	0.113	0.8816	0.8862	0.700	0.700
RADIAL POSITION	PERCENT THROUGH	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	TOT PRESS LOSS	EFFICIENCY	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	ROTOR DATA	
1	5.0000	1.994	1.203	1.891	1.261	0.235	0.7667	Total Pressure Ratio = 1.6333	FIXED INST. TRAV. INST.	1.7167	
2	10.0000	1.947	1.251	1.918	1.250	0.180	0.8198	Adiabatic Efficiency = 0.8133	FIXED INST. TRAV. INST.	0.9205	
3	30.0000	1.890	1.205	1.909	1.193	-0.049	1.0549	Polytropic Efficiency = 0.8258	FIXED INST. TRAV. INST.	0.9563	
4	50.0000	1.612	1.150	1.872	1.160	0.094	1.0620	Percent Design Speed = 100.1	Discharge Valve Setting = 8.5		
5	70.0000	1.533	1.132	1.833	1.142	0.054	0.9193	Cor. Nozzle Weight Flow = 207.2			
6	90.0000	1.507	1.136	1.888	1.142	0.132	0.8493	IE Check Flow/Noz.Flow = 1.0087	TE Check Flow/Noz.Flow = 0.9084		
7	95.0000	1.565	1.152	1.894	1.140	0.113	0.8816	Assumed IE Flow Coeff. = 0.9850	Assumed TE Flow Coeff. = 0.9500		

OVERALL PERFORMANCE SUMMARY

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST. TRAV. INST.	FIXED INST. TRAV. INST.	FIXED INST. TRAV. INST.
1.6333	1.6633	1.7167
0.8133	0.8457	0.9205
0.8258	0.8564	0.9563
Percent Design Speed = 100.1	Discharge Valve Setting = 8.5	
Cor. Nozzle Weight Flow = 207.2		
IE Check Flow/Noz.Flow = 1.0087	TE Check Flow/Noz.Flow = 0.9084	
Assumed IE Flow Coeff. = 0.9850	Assumed TE Flow Coeff. = 0.9500	

062670 **TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)**

		STATOR BLADE ROW - NASR TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS					POINT NUMBER 18 READING NUMBER 149 DATE 6/26/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1		55.38	39.47	15.91	15.91	816.89	464.07	464.07	672.27	672.27	
2		49.20	39.11	10.09	10.09	883.90	512.21	512.21	593.39	593.39	
3		42.67	39.01	3.66	3.66	773.49	568.51	568.51	524.04	524.04	
4		36.96	39.80	-2.84	-2.84	743.52	592.97	592.97	446.13	446.13	
5		38.39	40.86	-2.47	-2.47	722.73	563.53	563.53	446.56	446.56	
6		42.30	42.22	0.08	0.08	735.03	538.76	538.76	490.32	490.32	
7		47.59	42.76	4.83	4.83	968.43	513.86	513.86	562.55	562.55	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1		1.86	-11.13	12.99	53.53	968.00	568.49	568.49	10.42	10.42	
2		3.30	-10.10	13.40	45.90	881.45	586.45	586.45	33.49	33.49	
3		1.03	-8.87	9.90	41.64	877.95	577.62	577.62	10.35	10.35	
4		-1.31	-8.75	7.44	38.27	843.81	543.06	543.06	-12.45	-12.45	
5		-1.27	-9.10	7.83	39.66	817.17	515.94	515.94	-11.44	-11.44	
6		-0.05	-10.58	10.53	42.36	878.35	478.88	478.88	-0.43	-0.43	
7		-3.13	-12.36	9.23	50.72	851.57	449.45	449.45	-24.59	-24.59	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CH1					
1		0.671	0.671	1.225	0.566	0.297					
2		0.651	0.651	1.133	0.489	0.329					
3		0.657	0.657	1.016	0.456	0.349					
4		0.642	0.642	0.916	0.445	0.389					
5		0.627	0.627	0.916	0.451	0.432					
6		0.638	0.638	0.885	0.509	0.457					
7		0.667	0.667	0.875	0.591	0.489					
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS TOT LOSS PARAM	POLY MOMEN RISE/ RISE COEFF	STAT PRESS				
1		0.464	0.464	1.5230	0.042	0.6009	0.275				
2		0.477	0.477	1.5440	0.038	0.7472	0.306				
3		0.485	0.485	1.6310	0.017	0.8098	0.326				
4		0.462	0.462	1.7420	0.014	0.8439	0.366				
5		0.442	0.442	1.8800	0.044	0.8938	0.409				
6		0.408	0.408	2.0510	0.077	0.8018	0.433				
7		0.384	0.384	2.0980	0.089	0.6391	0.384				
RADIAL POSITION	PERCENT DIFFERENTIAL PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS PARAM	LOSS TOT	FIXED TOT			
1	5.0000	0.940	0.972	0.966	1.000	1.000	1.000	1.000			
2	10.0000	0.968	0.988	0.971	1.000	1.000	1.000	1.000			
3	30.0000	0.976	0.987	0.986	1.000	1.000	1.000	1.000			
4	50.0000	0.980	0.997	0.988	1.000	1.000	1.000	1.000			
5	70.0000	0.986	0.994	0.990	1.000	1.000	1.000	1.000			
6	90.0000	0.969	0.993	0.981	1.000	1.000	1.000	1.000			
7	95.0000	0.931	0.963	0.976	1.000	1.000	1.000	1.000			
OVERALL PERFORMANCE SUMMARY											
PERFORMANCE PARAMETERS			STAGE DATA STATOR DATA STATOR DATA			FIXED INST. FIXED INST. TRAV. INST.					
Total Pressure Ratio =			1.6333			0.9820 0.9711					
Polytropic Efficiency =			0.8258			0.9643 0.9711					
Percent Design Speed =			100.1			Discharge Valve Setting= 8.5					
Cor. Nozzle Weight Flow=			207.2								
IE Check Flow/Noz.Flow =			0.9132			TE Check Flow/Noz.Flow = 0.8977					
Assumed IE Flow Coeff. =			0.9500			Assumed TE Flow Coeff. = 0.9350					

062670 TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV										
		BLADE ELEMENT PERFORMANCE RESULTS					ROTOR DATA					
		POINT NUMBER	19	READING NUMBER	150	DATE	8/26/1970					
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1		35.39	1.21	60.60	4.79	2.09	821.27	1482.08	616.37	13.00	1345.64	
2		63.94	0.15	59.61	4.33	1.30	851.23	1478.52	648.95	1.66	1327.04	
3		59.79	0.91	56.01	2.78	-1.68	815.33	1379.91	715.06	18.96	1188.17	
4		45.75	0.91	52.56	-6.81	-12.65	1027.87	1470.62	1024.78	16.29	1051.90	
5		43.14	0.78	49.71	-6.57	-13.36	857.61	1358.14	983.70	13.40	921.69	
6		44.88	0.69	47.11	-2.23	-9.89	814.03	1225.96	781.28	9.35	777.97	
7		45.34	-0.14	46.13	-0.79	-8.69	874.08	1073.96	735.78	-1.79	744.44	
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL REV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1		59.87	32.72	54.90	4.07	6.52	897.13	1132.56	584.83	375.81	968.47	
2		59.52	32.40	54.42	4.10	5.42	888.53	1111.74	579.99	368.11	947.31	
3		52.53	30.89	50.68	1.85	6.26	833.20	1034.59	629.04	374.33	828.73	
4		26.47	26.47	43.79	8.38	-6.42	874.10	983.70	300.39	300.39	776.65	
5		44.71	31.71	32.15	12.56	-1.58	800.70	838.19	594.60	367.41	588.71	
6		29.54	34.54	14.29	13.91	16.68	837.94	784.40	682.91	470.08	366.22	
7		24.87	40.14	8.00	16.87	20.47	818.62	693.46	617.60	520.74	286.23	
RADIAL POSITION		ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS	ADB EFFICIENCY	POLY MOMEN RISE	STAT PRESS RISE	CHI	
1		1353.64	0.572	1.365	0.949	0.165	0.032	0.7619	0.7754	0.258	0.361	
2		1284.70	0.603	1.368	0.894	0.084	0.016	0.8758	0.8835	0.277	0.338	
3		1197.13	0.667	1.286	0.880	-0.012	0.002	1.0176	0.8855	0.366	0.455	
4		1049.18	1.000	1.431	0.589	0.128	0.023	0.7391	0.7491	0.427	0.522	
5		945.08	0.965	1.313	0.684	0.143	0.027	0.7200	0.7299	0.467	0.536	
6		787.32	0.764	1.057	0.874	0.160	0.032	0.7891	0.7985	0.435	0.398	
7		742.65	0.726	1.007	0.839	0.193	0.038	0.7578	0.7680	0.463	0.386	
RADIAL POSITION		ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	OVERALL PERFORMANCE SUMMARY			
1		1344.29	0.597	0.970	1.3340	1.165	1.165	1.165	STAGE DATA ROTOR DATA			
2		1313.42	0.594	0.959	1.3690	1.157	1.157	1.157	FIXED INST. FIXED INST. TRAV. INST.			
3		1197.06	0.638	0.901	1.5880	1.142	1.142	1.142	1.3604	1.3978	1.4486	
4		1077.24	0.865	0.865	1.6840	1.112	1.112	1.112	0.7060	0.7713	0.9308	
5		954.11	0.616	0.737	1.9060	1.106	1.106	1.106	0.7185	0.7819	0.9343	
6		835.29	0.746	0.698	2.2170	1.122	1.122	1.122	Percent Design Speed = 100.1			Discharge Valve Settings= 30.0
7		804.97	0.724	0.614	2.3390	1.120	1.120	1.120	Cor. Nozzle Weight Flow= 213.3			
RADIAL POSITION		TRAV INST.	FIXED INST.	TRAV INST.	FIXED INST.	PERFORMANCE PARAMETERS						
1		5.0000	1.164	1.512	1.165	Total Pressure Ratio =	1.3604					
2		10.0000	1.150	1.567	1.157	Adiabatic Efficiency =	0.7060					
3		30.0000	1.138	1.694	1.142	Polytropic Efficiency =	0.7185					
4		50.0000	1.092	1.335	1.106	Percent Design Speed =	100.1					
5		70.0000	1.316	1.292	1.106	Cor. Nozzle Weight Flow=	213.3					
6		90.0000	1.421	1.380	1.122							
7		95.0000	1.376	1.854	1.120							

IE Check Flow/Noz.Flow = 0.9863 TE Check Flow/Noz.Flow = 0.9173
 Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

062670 **TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)**

STATOR BLADE ROW - NASA TASK IV															
BLADE ELEMENT PERFORMANCE RESULTS															
6/26/1970															
POINT NUMBER 19 READING NUMBER 150 DATE															
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	DIFFUSION FACTOR	CHK1			
1	32.56	31.84	39.47	-6.291	30.37	600.82	614.99	614.99	23.47	23.47	0.288	0.038			
2	28.95	29.01	39.11	-7.227	30.83	600.42	605.54	605.54	12.00	12.00	0.186	0.050			
3	24.31	29.80	39.01	-10.06	27.45	679.75	696.10	696.10	18.16	18.16	0.244	0.078			
4	29.11	40.86	40.86	-11.775	25.87	656.39	652.35	652.35	-17.83	-17.83	0.222	0.053			
5	31.64	42.22	42.22	-10.758	31.26	735.58	654.32	654.32	-24.53	-24.53	0.254	0.059			
6	37.37	42.76	42.76	-10.758	28.82	494.28	794.86	794.86	39.13	39.13	0.200	0.019			
7				-5.39	35.91	633.44	750.27	750.27	19.18	19.18	0.231	0.031			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	DIFFUSION FACTOR	CHK1			
1	5.0000	0.954	0.994	1.5230	0.196	1.5230	0.064	0.064	0.1708	0.1708	0.035	0.035			
2	10.0000	1.002	1.002	1.5440	0.065	0.021	0.021	0.021	1.1370	1.1370	0.045	0.045			
3	30.0000	0.963	0.998	1.6310	0.072	0.022	0.022	0.022	0.4037	0.4037	0.070	0.070			
4	50.0000	0.962	1.001	1.7420	0.150	0.043	0.043	0.043	0.2827	0.2827	0.048	0.048			
5	70.0000	0.954	0.991	1.8800	0.091	0.024	0.024	0.024	0.2776	0.2776	0.054	0.054			
6	90.0000	0.940	0.997	2.0510	0.094	0.023	0.023	0.023	0.1157	0.1157	0.016	0.016			
7	95.0000	0.947	0.969	2.0980	0.108	0.026	0.026	0.026	0.1795	0.1795	0.027	0.027			

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.3604 0.9732 0.9630
 Polytropic Efficiency = 0.7185 0.9189 0.3580
 Percent Design Speed = 100.1 Discharge Valve Setting=30.0
 Cor. Nozzle Weight Flow= 213.3
 LE Check Flow/Noz.Flow = 0.9222 TE Check Flow/Noz.Flow = 0.8861
 Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

062670

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW " NASA TASK IV										
		BLADE ELEMENT PERFORMANCE RESULTS					DATE 6/26/1970					
		POINT NUMBER	20	READING NUMBER	151	DATE						
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL
1	67.10	0.23	60.90	6.50	3.80	877.44	1474.49	573.00	2.35	1356.72	1356.72	
2	65.94	0.20	59.61	6.33	3.30	894.62	1454.16	592.53	2.09	1327.63	1327.63	
3	58.76	0.93	56.01	2.75	-1.71	1028.08	1470.10	720.61	11.71	1187.81	1187.81	
4	45.72	0.98	52.56	-6.84	-12.68	1023.68	1383.10	1024.97	17.55	1050.98	1050.98	
5	42.41	0.55	49.71	-7.30	-14.09	999.82	1116.09	1013.39	9.67	928.71	928.71	
6	45.51	0.47	47.11	-1.60	-9.26	856.57	1062.79	719.12	6.26	781.31	781.31	
7	46.07	-0.28	46.13	-0.06	-7.96	881.22	566.46	508.59	-3.53	746.41	746.41	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	51.86	51.25	54.80	1.06	11.25	990.93	881.74	494.28	615.88	728.84	728.84	
2	56.33	46.75	54.42	1.61	9.91	925.39	925.39	516.51	549.14	766.70	766.70	
3	51.51	42.81	50.68	0.83	7.25	881.08	881.08	548.35	507.94	689.50	689.50	
4	49.50	38.08	43.79	5.71	-3.78	800.54	849.11	551.37	431.97	645.62	645.62	
5	44.37	40.97	32.15	12.52	-1.96	887.25	725.81	517.89	449.73	506.69	506.69	
6	32.29	43.31	14.29	18.00	13.22	635.53	531.29	500.88	500.88	335.68	335.68	
7	23.80	48.89	8.00	15.80	22.26	881.22	566.46	508.59	582.89	224.34	224.34	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	EFFICIENCY ADB	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF		
1	1359.07	0.528	1.349	0.863	1.3340	0.217	0.846	0.7762	0.7946	0.392	0.505	
2	1329.13	0.545	1.333	0.872	1.3690	0.154	0.831	0.8407	0.8542	0.413	0.522	
3	1199.52	0.672	1.296	0.761	1.5080	-0.046	0.809	1.0522	1.0477	0.529	0.617	
4	1068.52	1.000	1.450	0.538	1.6840	0.095	0.818	0.8566	0.8651	0.572	0.659	
5	939.38	1.000	1.346	0.511	1.9060	0.069	0.813	0.8939	0.8998	0.634	0.693	
6	787.57	0.751	1.049	0.692	2.2170	0.143	0.827	0.8361	0.8448	0.649	0.638	
7	742.88	0.707	0.994	0.707	2.3390	0.121	0.824	0.8703	0.8773	0.670	0.628	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	EFFICIENCY ADB	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF		
1	1344.71	0.653	0.728	0.846	1.3340	0.217	0.846	0.7762	0.7946	0.392	0.505	
2	1315.84	0.630	0.772	0.840	1.3690	0.154	0.831	0.8407	0.8542	0.413	0.522	
3	1197.44	0.634	0.747	0.761	1.5080	-0.046	0.809	1.0522	1.0477	0.529	0.617	
4	1077.58	0.603	0.731	0.684	1.6840	0.095	0.818	0.8566	0.8651	0.572	0.659	
5	956.42	0.595	0.628	0.511	1.9060	0.069	0.813	0.8939	0.8998	0.634	0.693	
6	836.56	0.640	0.553	0.707	2.2170	0.143	0.827	0.8361	0.8448	0.649	0.638	
7	807.23	0.680	0.493	0.707	2.3390	0.121	0.824	0.8703	0.8773	0.670	0.628	
RADIAL POSITION	PERCENT THROUGH PRESS RATIO	TRAY TOT PRESS RATIO	TRAY TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY					
1	5.0000	1.949	1.266	1.248	1.248	1.248	SOURCE DATA ROTOR DATA ROTOR DATA					
2	10.0000	1.904	1.233	1.236	1.188	1.188	FIXED INST. FIXED INST. TRAV. INST.					
3	30.0000	1.866	1.201	1.862	1.188	1.188	Total Pressure Ratio = 1.6079 1.6341 1.6892					
4	50.0000	1.573	1.141	1.544	1.154	1.154	Adiabatic Efficiency = 0.8119 0.8415 0.9274					
5	70.0000	1.501	1.128	1.139	1.139	1.139	Polytropic Efficiency = 0.8241 0.8521 0.9326					
6	90.0000	1.499	1.133	1.472	1.140	1.140	Percent Design Speed = 100.1 Discharge Valve Settings= 9.5					
7	95.0000	1.551	1.148	1.485	1.138	1.138	Cor. Nozzle Weight Flow= 209.2					

LE Check Flow/Noz.Flow = 0.9985 TE Check Flow/Noz.Flow = 0.9095
 Assumed LE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW * NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER	20	READING NUMBER	151	DATE	8/26/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID LN MN CMR LN	INCID LN SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	51.09	46.18	39.47	11.62	7.07	794.29	498.84	498.84	618.10	618.10	
2	40.85	35.61	39.11	7.07	7.07	763.86	528.87	528.87	551.14	551.14	
3	35.61	30.80	39.01	1.84	1.84	776.19	584.91	584.91	507.45	507.45	
4	38.30	40.65	40.86	-4.19	39.80	736.07	557.23	557.23	427.67	427.67	
5	40.65	46.19	42.22	-2.56	41.00	714.00	577.45	577.45	440.22	440.22	
6	46.19		42.76	-1.57	42.22	748.38	562.50	562.50	482.93	482.93	
7				3.53	42.76	881.22	555.07	555.07	559.63	559.63	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	BEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	3.47	2.87	-11.13	14.60	47.53	565.05	564.01	564.01	34.19	34.19	
2	2.87	2.87	-10.10	12.97	43.31	597.65	596.87	596.87	29.89	29.89	
3	0.45	-1.20	-8.87	9.32	40.40	586.29	586.03	586.03	4.59	4.59	
4	-1.20	-1.01	-8.75	7.55	36.80	542.99	542.27	542.27	-11.33	-11.33	
5	-1.01	0.30	-9.10	8.09	39.31	527.54	526.33	526.33	-9.27	-9.27	
6	0.30	-2.92	-10.58	10.88	40.35	503.55	501.99	501.99	2.63	2.63	
7			-12.36	9.44	49.20	474.54	472.40	472.40	-24.07	-24.07	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ HEAS T RISE	STAT PRESS RISE COEFF	CHI	
1	0.656	0.463	0.463	1.5230	0.125	0.041	0.5852	0.257	0.278	0.278	
2	0.638	0.493	0.493	1.5440	0.080	0.026	0.8301	0.296	0.317	0.317	
3	0.660	0.493	0.493	1.6310	0.052	0.016	0.7859	0.305	0.328	0.328	
4	0.637	0.462	0.462	1.7420	0.055	0.016	0.8255	0.350	0.372	0.372	
5	0.620	0.452	0.452	1.8800	0.039	0.010	0.9254	0.393	0.416	0.416	
6	0.652	0.430	0.430	2.0510	0.070	0.017	0.7753	0.394	0.481	0.481	
7	0.680	0.405	0.405	2.0980	0.086	0.021	0.6292	0.388	0.567	0.567	
RADIAL POSITION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ HEAS T RISE	STAT PRESS RISE COEFF	CHI	
1	0.943	0.943	0.975	0.968	1.000	0.041	0.5852	0.257	0.278	0.278	
2	0.982	0.982	0.993	0.981	1.000	0.026	0.8301	0.296	0.317	0.317	
3	0.973	0.973	0.985	0.987	1.000	0.016	0.7859	0.305	0.328	0.328	
4	0.978	0.978	0.995	0.997	1.000	0.016	0.8255	0.350	0.372	0.372	
5	0.991	0.991	0.994	0.997	1.000	0.010	0.9254	0.393	0.416	0.416	
6	0.965	0.965	0.993	0.982	1.000	0.017	0.7753	0.394	0.481	0.481	
7	0.930	0.930	0.982	0.976	1.000	0.021	0.6292	0.388	0.567	0.567	

OVERALL PERFORMANCE SUMMARY

		STATOR DATA		STATOR DATA		STATOR DATA	
		FIXED INST.		FIXED INST.		FIXED INST.	
PERFORMANCE PARAMETERS	Total Pressure Ratio =	1.6079	0.9840	0.9840	0.9731	0.9731	0.9731
	Polytropic Efficiency =	0.8241	0.9671	0.9671	0.9671	0.9671	0.9671
	Percent Design Speed =	100.1	Discharge Valve Setting=	9.5			
	Cor. Nozzle Weight Flow=	209.2					
	IE Check Flow/Noz.Flow =	0.9143	TE Check Flow/Noz.Flow =	0.8890			
	Assumed IE Flow Coeff. =	0.9500	Assumed TE Flow Coeff. =	0.9350			

081970 **TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)**

ROTOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS									
POINT NUMBER 30		READING NUMBR 25		DATE		8/17/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	SUCT SURF ANGLE	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	68.84	0.59	5.24	5.24	2.54	2.54	81.10	1483.43	604.39	4.20	1351.72
2	68.70	0.45	5.09	5.09	2.06	2.06	82.84	146.40	625.42	4.92	1323.08
3	57.95	1.10	1.54	1.54	-2.92	-2.92	82.93	1403.14	752.77	14.40	1184.11
4	48.47	1.52	0.709	0.709	-12.93	-12.93	1826.81	1461.59	1023.50	27.13	1040.50
5	42.18	0.97	0.753	0.753	-14.32	-14.32	1826.81	1376.92	1012.44	17.06	917.54
6	45.52	0.55	0.711	0.711	-9.25	-9.25	1826.81	1115.38	765.64	7.33	779.58
7	48.39	-0.25	0.613	0.613	-5.64	-5.64	1826.81	1019.80	661.80	-2.88	749.13
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL ANGLE	REL TURN ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	58.54	33.28	54.80	3.74	7.30	7.30	85.47	1124.96	586.44	384.99	958.59
2	58.29	32.75	54.42	3.87	6.41	6.41	82.82	1106.87	581.34	373.98	940.75
3	58.71	31.92	50.58	2.03	4.85	4.85	82.24	1020.11	617.96	384.96	811.47
4	52.49	26.31	43.79	8.70	-7.02	-7.02	88.48	983.95	599.10	294.25	788.42
5	48.57	32.05	32.15	12.42	-2.39	-2.39	80.46	834.04	593.09	371.29	584.32
6	29.09	34.80	14.29	14.80	-6.43	-6.43	82.11	773.60	667.98	464.23	371.62
7	24.86	40.18	8.00	16.86	23.53	23.53	81.92	692.45	616.71	528.76	285.79
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS COEFFICIENT	TOT PRESS PARAM	LOSS EFFICIENCY	ADJ EFFICIENCY	POLY MOMEN RISE/ MEAS. Y RISE	STAT PRESS RISE COEFF
1	1357.93	0.563	1.356	0.767	0.119	0.119	0.023	0.8300	0.8404	0.260	0.260
2	1328.01	0.579	1.331	0.750	0.077	0.077	0.015	0.899	0.899	0.278	0.278
3	1194.50	0.705	1.313	0.821	-0.009	-0.009	0.002	1.0136	1.0127	0.133	0.133
4	1067.62	1.000	1.424	0.885	0.132	0.132	0.024	0.7283	0.7384	0.144	0.144
5	934.59	1.000	1.341	0.866	0.136	0.136	0.026	0.7268	0.7366	0.482	0.482
6	786.91	0.749	1.048	0.872	0.167	0.167	0.033	0.7864	0.7960	0.432	0.432
7	742.26	0.648	0.949	0.932	0.218	0.218	0.042	0.7520	0.7626	0.385	0.385
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	LOSS COEFFICIENT	LOSS COEFFICIENT	TOT PRESS PARAM	LOSS EFFICIENCY	ADJ EFFICIENCY	POLY MOMEN RISE/ MEAS. Y RISE	STAT PRESS RISE COEFF
1	1343.58	0.604	0.985	1.3340	0.119	0.119	0.023	0.8300	0.8404	0.260	0.260
2	1314.73	0.596	0.953	1.3690	0.077	0.077	0.015	0.899	0.899	0.278	0.278
3	1194.43	0.633	0.887	1.5080	-0.009	-0.009	0.002	1.0136	1.0127	0.133	0.133
4	1078.67	0.589	0.887	1.6840	0.132	0.132	0.024	0.7283	0.7384	0.144	0.144
5	953.61	0.617	0.733	1.9060	0.136	0.136	0.026	0.7268	0.7366	0.482	0.482
6	835.85	0.729	0.686	2.2170	0.167	0.167	0.033	0.7864	0.7960	0.432	0.432
7	804.55	0.721	0.611	2.3390	0.218	0.218	0.042	0.7520	0.7626	0.385	0.385
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	LOSS COEFFICIENT	LOSS COEFFICIENT	TOT PRESS PARAM	LOSS EFFICIENCY	ADJ EFFICIENCY	POLY MOMEN RISE/ MEAS. Y RISE	STAT PRESS RISE COEFF
1	5.0000	1.576	1.154	1.561	0.119	0.119	0.023	0.8300	0.8404	0.260	0.260
2	10.0000	1.569	1.155	1.594	0.077	0.077	0.015	0.899	0.899	0.278	0.278
3	30.0000	1.578	1.140	1.812	-0.009	-0.009	0.002	1.0136	1.0127	0.133	0.133
4	50.0000	1.332	1.091	1.809	0.132	0.132	0.024	0.7283	0.7384	0.144	0.144
5	70.0000	1.319	1.101	1.894	0.136	0.136	0.026	0.7268	0.7366	0.482	0.482
6	90.0000	1.407	1.117	1.866	0.167	0.167	0.033	0.7864	0.7960	0.432	0.432
7	95.0000	1.426	1.135	1.958	0.218	0.218	0.042	0.7520	0.7626	0.385	0.385

OVERALL PERFORMANCE SUMMARY

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST. FIXED INST.	TRAV. INST.	TRAV. INST.
1.3634	1.4014	1.4503
0.7053	0.7708	0.9085
0.7179	0.7815	0.9132
Discharge Valve Setting= 30.0		
Cor. Nozzle Weight Flow= 211.9		
LE Check Flow/Noz.Flow = 0.9919		
Assumed LE Flow Coeff. = 0.9850		
TE Check Flow/Noz.Flow = 0.9161		
Assumed TE Flow Coeff. = 0.9500		

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV												
BLADE ELEMENT PERFORMANCE RESULTS												
POINT NUMBER		30		READING NUMBER		223		DATE		8/17/1970		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY
1	33.12	32.18	39.47	-6.35	30.70	707.19	404.71	592.30	386.38	267.19	617.28	26.09
2	32.18	29.98	39.01	-6.93	30.01	692.14	404.71	596.41	375.34	26.19	691.61	26.09
3	29.98	24.17	39.80	-9.03	28.11	701.30	418.15	664.79	384.59	22.86	700.64	22.86
4	24.17	29.44	40.86	-15.63	25.45	644.39	444.26	653.50	298.30	-14.31	643.51	-14.31
5	29.44	31.96	42.22	-11.42	30.95	657.93	455.66	648.08	363.44	-17.36	656.29	-17.36
6	31.96	37.42	42.76	-10.26	29.94	497.37	432.54	653.44	447.60	27.97	794.42	27.97
7	37.42			-5.34	36.44	458.22		653.46	499.98	12.95	755.67	12.95
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN YE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	DIFFUSION FACTOR	CHI
1	2.42	2.17	-11.13	13.55	30.70	617.84	417.84	617.28	26.09	26.09	0.294	0.041
2	2.17	1.87	-10.10	12.27	30.01	692.14	404.71	691.61	26.19	26.19	0.178	0.054
3	1.87	-1.27	-8.67	10.74	28.11	701.30	418.15	700.64	22.86	22.86	0.233	0.064
4	-1.27	2.02	-9.10	7.58	25.45	644.39	444.26	643.51	-14.31	-14.31	0.225	0.046
5	2.02	0.98	-10.58	7.58	30.95	657.93	455.66	656.29	-17.36	-17.36	0.251	0.050
6	0.98		-12.36	13.34	29.94	497.37	432.54	794.42	27.97	27.97	0.185	0.022
7					36.44	458.22		755.67	12.95	12.95	0.226	0.029
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	POLY MOMEN RISE/ STAT PRESS RISE COEFF	EFFICIENCY	ADD EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF
1	5.0000	0.527	0.607	1.5230	0.188	0.062	0.1769	0.037	0.1769	0.1769	0.049	0.049
2	10.0000	0.596	0.673	1.5440	0.048	0.072	1.3167	0.057	1.3167	1.3167	0.057	0.057
3	30.0000	0.609	0.636	1.6310	0.062	0.042	0.3807	0.041	0.3807	0.3807	0.041	0.041
4	50.0000	0.565	0.558	1.7420	0.146	0.042	0.2320	0.045	0.2320	0.2320	0.045	0.045
5	70.0000	0.579	0.762	1.8800	0.109	0.029	0.2395	0.019	0.2395	0.2395	0.019	0.019
6	90.0000	0.706	0.736	2.0510	0.107	0.026	0.1714	0.025	0.1714	0.1714	0.025	0.025
7	99.0000	0.669	0.736	2.0980	0.118	0.028	0.1828	0.025	0.1828	0.1828	0.025	0.025
RADIAL POSITION	PERCENT THROUGH	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	TOT PRESS LOSS PARAM	POLY MOMEN RISE/ STAT PRESS RISE COEFF	EFFICIENCY	ADD EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF
1	5.0000	0.952	0.952	0.958	1.000	0.188	0.1769	0.037	0.1769	0.1769	0.049	0.049
2	10.0000	1.005	1.000	0.985	1.000	0.048	0.3807	0.041	0.3807	0.3807	0.041	0.041
3	30.0000	0.968	0.998	0.965	1.000	0.062	0.2320	0.045	0.2320	0.2320	0.045	0.045
4	50.0000	0.958	1.004	0.965	1.000	0.146	0.2395	0.019	0.2395	0.2395	0.019	0.019
5	70.0000	0.953	0.990	0.972	1.000	0.109	0.1714	0.025	0.1714	0.1714	0.025	0.025
6	90.0000	0.958	0.996	0.966	1.000	0.107	0.1828	0.025	0.1828	0.1828	0.025	0.025
7	99.0000	0.953	0.985	0.964	1.000	0.118	0.1828	0.025	0.1828	0.1828	0.025	0.025
OVERALL PERFORMANCE SUMMARY												
STAGE DATA STATOR DATA STATOR DATA												
FIXED INST. FIXED INST. TRAV. INST.												
1.3634 0.9729 0.9656												
0.7179 0.9186 0.3648												
Discharge Valve Setting= 30.0												
Percent Design Speed = 100.0												
Cor. Nozzle Weight Flow= 211.9												
LE Check Flow/Noz.Flow = 0.9209												
TE Check Flow/Noz.Flow = 0.8941												
Assumed LE Flow Coeff. = 0.9500												
Assumed TE Flow Coeff. = 0.9350												

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 31		READING NUMBER 224		DATE 8/17/1970		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMRR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	68.00	-0.32	60.60	7.40	4.70	953.82	1368.17	549.157	-8.10	1366.14
2	66.58	-0.80	59.61	6.97	3.94	880.55	1459.94	578.46	-8.07	1339.21
3	60.62	1.09	56.01	4.61	0.15	867.29	1359.93	667.15	12.70	1185.02
4	43.92	1.32	52.56	-6.64	-12.48	1813.79	1354.80	1018.60	23.26	1083.66
5	44.25	1.05	49.71	-5.46	-12.25	954.32	1328.21	948.94	17.22	916.76
6	45.64	0.63	47.11	-3.47	-9.13	992.73	1110.70	760.83	8.39	778.00
7	48.68	-0.84	46.13	2.55	-5.35	895.15	1023.60	660.69	-9.63	751.40
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMRR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	37.25	54.11	54.80	2.45	10.75	781.08	846.12	457.125	631.94	718.76
2	56.19	48.37	54.42	1.77	10.39	756.52	902.62	501.81	564.49	749.18
3	52.19	45.35	50.68	1.51	8.43	739.47	847.76	519.62	525.95	669.70
4	49.36	39.07	43.79	5.57	-3.44	701.16	835.77	544.29	441.85	634.12
5	43.46	40.50	32.15	11.31	0.79	698.39	731.50	529.96	452.71	502.28
6	32.57	44.36	14.29	18.28	13.07	728.55	620.02	516.74	503.26	338.04
7	24.05	51.25	8.00	16.05	24.62	767.76	531.53	476.33	593.41	212.61
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS TOY PRESS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF
1	1357.04	0.505	1.340	0.832	0.196	0.040	0.812	0.8180	0.585	0.390
2	1327.14	0.531	1.332	0.867	0.161	0.033	0.8349	0.8491	0.523	0.517
3	1197.72	0.619	1.261	0.779	-0.021	-0.004	1.0234	1.0214	0.502	0.587
4	1066.92	0.696	1.145	0.639	0.104	0.020	0.8430	0.8522	0.511	0.658
5	933.98	0.918	1.273	0.563	0.073	0.014	0.8933	0.8993	0.534	0.671
6	786.39	0.745	1.044	0.679	0.128	0.024	0.8542	0.8620	0.545	0.646
7	741.77	0.647	0.953	0.721	0.118	0.023	0.8824	0.8890	0.612	0.648
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	LOSS TOY PRESS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF
1	1342.70	0.644	0.998	1.340	0.196	0.040	0.812	0.8180	0.585	0.390
2	1313.87	0.631	0.953	1.3690	0.161	0.033	0.8349	0.8491	0.523	0.517
3	1195.95	0.628	0.720	1.2080	-0.021	-0.004	1.0234	1.0214	0.502	0.587
4	1075.97	0.604	0.720	1.0840	0.104	0.020	0.8430	0.8522	0.511	0.658
5	954.99	0.606	0.634	1.2060	0.073	0.014	0.8933	0.8993	0.534	0.671
6	835.31	0.633	0.539	1.2170	0.128	0.024	0.8542	0.8620	0.545	0.646
7	806.02	0.667	0.462	1.3390	0.118	0.023	0.8824	0.8890	0.612	0.648
RADIAL POSITION	PERCENT FLOW	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS TOY PRESS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF
1	5.0000	1.945	1.262	1.888	0.196	0.040	0.812	0.8180	0.585	0.390
2	10.0000	1.912	1.231	1.898	0.161	0.033	0.8349	0.8491	0.523	0.517
3	30.0000	1.829	1.199	1.871	-0.021	-0.004	1.0234	1.0214	0.502	0.587
4	30.0000	1.575	1.145	1.532	0.104	0.020	0.8430	0.8522	0.511	0.658
5	70.0000	1.311	1.131	1.302	0.073	0.014	0.8933	0.8993	0.534	0.671
6	90.0000	1.500	1.139	1.482	0.128	0.024	0.8542	0.8620	0.545	0.646
7	95.0000	1.584	1.156	1.500	0.118	0.023	0.8824	0.8890	0.612	0.648
OVERALL PERFORMANCE SUMMARY										
STAGE DATA					ROTOR DATA			ROTOR DATA		
FIXED INST. FIXED INST. TRAV. INST.					FIXED INST. FIXED INST. TRAV. INST.			FIXED INST. FIXED INST. TRAV. INST.		
= 1.6089					= 1.6311			= 1.6837		
= 0.8081					= 0.8331			= 0.9151		
= 0.8205					= 0.8442			= 0.9211		
Discharge Valve Setting= 9.0					Percent Design Speed = 99.9			Cor. Nozzle Weight Flow= 205.0		
TE Check Flow/Noz.Flow = 1.0019					TE Check Flow/Noz.Flow = 0.9053					
Assumed IE Flow Coeff. = 0.9850					Assumed IE Flow Coeff. = 0.9750					

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

081970		STATOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER	31	READING NUMBER	224	DATE	8/17/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	53.96	47.81	39.47	14.49	42.31	459.81	461.39	461.39	634.22	634.22	
2	43.43	39.01	4.42	8.70	42.31	459.81	513.65	513.65	566.74	566.74	
3	36.99	39.60	-3.21	4.72	41.24	459.81	555.06	555.06	525.44	525.44	
4	37.81	40.86	-3.05	4.72	37.29	459.81	589.18	589.18	437.45	437.45	
5	41.71	42.22	-0.751	4.72	38.43	459.81	571.12	571.12	443.14	443.14	
6	48.71	42.76	5.795	4.72	43.02	459.81	546.60	546.60	487.16	487.16	
7					50.54	459.81	500.41	500.41	569.73	569.73	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	3.27	14.40	-11.13	14.40	50.69	459.81	558.89	558.89	31.96	31.96	
2	5.91	15.61	-10.10	15.61	42.31	459.81	596.23	596.23	57.48	57.48	
3	2.19	8.75	-6.87	8.75	41.24	459.81	576.73	576.73	22.02	22.02	
4	-0.70	8.05	-9.10	8.05	37.29	459.81	533.85	533.85	-6.51	-6.51	
5	-0.62	9.11	-10.58	9.11	38.43	459.81	520.39	520.39	-5.64	-5.64	
6	-1.31	10.73	-12.36	10.73	43.02	459.81	509.25	509.25	-11.49	-11.49	
7	-1.83	10.73			50.54	459.81	483.60	483.60	-15.46	-15.46	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADD EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF	
1	0.647	0.647	0.647	1.211	1.5230	0.120	0.039	0.6184	0.272	0.272	
2	0.639	0.639	0.639	1.161	1.5440	0.079	0.026	0.8347	0.298	0.298	
3	0.651	0.651	0.651	1.039	1.5310	0.043	0.013	0.8074	0.318	0.318	
4	0.636	0.636	0.636	1.7420	1.5800	0.033	0.007	0.8235	0.362	0.362	
5	0.632	0.632	0.632	1.919	2.0510	0.073	0.048	0.8937	0.405	0.405	
6	0.643	0.643	0.643	0.919	2.0980	0.106	0.025	0.8417	0.420	0.420	
7	0.664	0.664	0.664	0.966				0.7058	0.412	0.412	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF	
1	5.0000	0.949	0.977	0.970	1.000	1.000	0.120	0.6184	0.272	0.272	
2	10.0000	0.982	0.996	0.981	1.000	1.000	0.079	0.8347	0.298	0.298	
3	30.0000	0.976	0.991	0.989	1.000	1.000	0.043	0.8074	0.318	0.318	
4	50.0000	0.977	0.996	0.994	1.000	1.000	0.033	0.8235	0.362	0.362	
5	70.0000	0.986	0.994	0.992	1.000	1.000	0.073	0.8937	0.405	0.405	
6	90.0000	0.976	0.993	0.982	1.000	1.000	0.106	0.8417	0.420	0.420	
7	95.0000	0.949	0.984	0.972	1.000	1.000	0.106	0.7058	0.412	0.412	

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.6089 0.9864 0.9752
 Polytropic Efficiency = 0.8205 0.9719 0.9434
 Percent Design Speed = 99.9
 Cor. Nozzle Weight Flow = 205.0
 Discharge Valve Setting = 9.0
 LE Check Flow/Noz.Flow = 0.9101
 Assumed LE Flow Coeff. = 0.9500
 TE Check Flow/Noz.Flow = 0.9088
 Assumed TE Flow Coeff. = 0.9350

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV																						
		BLADE ELEMENT PERFORMANCE RESULTS																						
		POINT NUMBER 33 READING NUMBER 226 DATE 6/17/1970																						
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG MN CHBR LN	INCLD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS Y-ANG VEL	INLET REL Y-ANG VEL	INLET AX Y-ANG VEL	EXIT ABS FLOW ANG	EXIT REL FLOW ANG	CHBR LN TE ANGLE	REL DEVI ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS Y-ANG VEL	EXIT REL Y-ANG VEL	EXIT AX Y-ANG VEL		
1	67.26	-0.51	60.60	6.66	3.96	875.32	1478.74	570.69	-5.09	1362.21	570.69	48.13	54.90	1.739	11.07	6.00	975.53	926.15	514.74	574.22	768.56	514.74	574.22	768.56
2	66.04	-0.07	59.61	6.43	3.40	592.07	1458.91	590.00	-0.74	1327.96	590.00	44.49	54.82	2.07	9.55	5.55	940.11	959.79	527.13	517.79	796.16	517.79	796.16	
3	58.33	0.70	56.01	2.32	-2.14	733.45	1306.80	733.38	9.02	1188.77	733.38	41.36	50.88	1.51	6.34	4.33	837.78	899.07	553.61	487.46	708.25	487.46	708.25	
4	45.53	1.32	52.56	-7.03	-12.87	1027.59	1484.28	1024.36	23.57	1043.42	1024.36	36.25	43.79	6.89	-5.15	6.96	862.96	869.09	550.67	403.78	672.25	403.78	672.25	
5	48.30	0.71	49.71	-7.41	-14.20	1026.94	1379.73	1012.63	12.51	921.52	1012.63	39.21	32.15	12.53	-2.38	3.36	884.36	749.50	529.15	431.75	523.29	431.75	523.29	
6	48.77	0.27	47.11	-1.74	-9.00	794.00	1119.02	762.08	3.59	782.85	762.08	41.56	14.29	18.15	13.33	8.99	839.89	657.54	546.76	486.56	348.79	486.56	348.79	
7	48.48	-0.96	46.13	2.35	-5.55	701.36	1028.97	666.57	-11.18	753.00	666.57	47.89	8.00	16.38	24.10	9.65	976.65	578.10	516.77	571.82	234.25	571.82	234.25	
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG MN CHBR LN	INCLD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS Y-ANG VEL	INLET REL Y-ANG VEL	INLET AX Y-ANG VEL	EXIT ABS FLOW ANG	EXIT REL FLOW ANG	CHBR LN TE ANGLE	REL DEVI ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS Y-ANG VEL	EXIT REL Y-ANG VEL	EXIT AX Y-ANG VEL		
1	134.78	0.644	0.772	1.384	0.962	1.353	0.893	1.304	0.755	1.425	0.738	1.000	1.344	0.523	0.720	0.775	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2	119.72	0.628	0.766	1.304	0.755	1.344	0.523	0.720	0.775	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3	107.03	0.591	0.752	1.344	0.523	0.720	0.775	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4	95.04	0.594	0.647	1.066	0.720	0.775	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5	83.35	0.645	0.573	2.217	0.134	0.625	0.8513	0.8513	0.8513	0.8513	0.8513	0.678	0.504	2.349	0.125	0.125	0.825	0.8649	0.8649	0.8649	0.8649	0.8649	0.8649	0.8649
6	80.07	0.678	0.504	2.349	0.125	0.125	0.8649	0.8649	0.8649	0.8649	0.8649	0.678	0.504	2.349	0.125	0.125	0.825	0.8649	0.8649	0.8649	0.8649	0.8649	0.8649	0.8649
7	80.07	0.678	0.504	2.349	0.125	0.125	0.8649	0.8649	0.8649	0.8649	0.8649	0.678	0.504	2.349	0.125	0.125	0.825	0.8649	0.8649	0.8649	0.8649	0.8649	0.8649	0.8649
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG MN CHBR LN	INCLD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS Y-ANG VEL	INLET REL Y-ANG VEL	INLET AX Y-ANG VEL	EXIT ABS FLOW ANG	EXIT REL FLOW ANG	CHBR LN TE ANGLE	REL DEVI ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS Y-ANG VEL	EXIT REL Y-ANG VEL	EXIT AX Y-ANG VEL		
1	5.0000	1.890	1.239	1.836	1.222	1.836	1.222	1.836	1.222	1.836	1.222	1.836	1.222	1.836	1.222	1.836	1.222	1.836	1.222	1.836	1.222	1.836	1.222	1.836
2	10.0000	1.853	1.211	1.849	1.141	1.849	1.141	1.849	1.141	1.849	1.141	1.849	1.141	1.849	1.141	1.849	1.141	1.849	1.141	1.849	1.141	1.849	1.141	1.849
3	30.0000	1.798	1.187	1.834	1.142	1.834	1.142	1.834	1.142	1.834	1.142	1.834	1.142	1.834	1.142	1.834	1.142	1.834	1.142	1.834	1.142	1.834	1.142	1.834
4	50.0000	1.508	1.130	1.877	1.142	1.877	1.142	1.877	1.142	1.877	1.142	1.877	1.142	1.877	1.142	1.877	1.142	1.877	1.142	1.877	1.142	1.877	1.142	1.877
5	70.0000	1.457	1.125	1.955	1.134	1.955	1.134	1.955	1.134	1.955	1.134	1.955	1.134	1.955	1.134	1.955	1.134	1.955	1.134	1.955	1.134	1.955	1.134	1.955
6	90.0000	1.472	1.112	1.961	1.134	1.961	1.134	1.961	1.134	1.961	1.134	1.961	1.134	1.961	1.134	1.961	1.134	1.961	1.134	1.961	1.134	1.961	1.134	1.961
7	95.0000	1.553	1.118	1.965	1.134	1.965	1.134	1.965	1.134	1.965	1.134	1.965	1.134	1.965	1.134	1.965	1.134	1.965	1.134	1.965	1.134	1.965	1.134	1.965
		OVERALL PERFORMANCE SUMMARY																						
		STAGE DATA ROTOR DATA ROTOR DATA																						
		FIXED INST. FIXED INST. TRAV. INST.																						
		PERFORMANCE PARAMETERS																						
		Total Pressure Ratio = 1.5538 1.5535 1.5387																						
		Adiabatic Efficiency = 0.8068 0.8309 0.8274																						
		Polytropic Efficiency = 0.8186 0.8415 0.9323																						
		Percent Design Speed = 100.0 Discharge Valve Setting= 11.0																						
		Cor. Nozzle Weight Flow= 207.7																						
		LE Check Flow/Noz.Flow = 1.0017 TE Check Flow/Noz.Flow = 0.9108																						
		Assumed LE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9200																						

081970

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASR TASK IV																
BLADE ELEMENT PERFORMANCE RESULTS																
POINT NUMBER 33 READING NUMBER 226 DATE 8/17/1978																
RAJIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN	INCID ANG LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		47.96	39.47	6.49	6.49	475.93	519.29	519.29	519.29	519.29	519.29	519.29	519.29	519.29	519.29	519.29
2		43.91	39.11	4.80	4.80	449.39	539.90	539.90	539.90	539.90	539.90	539.90	539.90	539.90	539.90	539.90
3		39.40	39.01	0.39	0.39	467.61	487.00	487.00	487.00	487.00	487.00	487.00	487.00	487.00	487.00	487.00
4		33.83	39.80	-5.97	-5.97	419.64	399.78	399.78	399.78	399.78	399.78	399.78	399.78	399.78	399.78	399.78
5		36.55	40.86	-4.31	-4.31	413.59	422.63	422.63	422.63	422.63	422.63	422.63	422.63	422.63	422.63	422.63
6		38.88	42.22	-3.34	-3.34	454.77	570.18	570.18	570.18	570.18	570.18	570.18	570.18	570.18	570.18	570.18
7		45.27	42.76	2.51	2.51	479.99	549.00	549.00	549.00	549.00	549.00	549.00	549.00	549.00	549.00	549.00
RAJIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		4.79	-11.13	15.92	43.17	571.75	569.75	569.75	569.75	569.75	569.75	569.75	569.75	569.75	569.75	569.75
2		3.79	-10.10	13.69	40.12	416.44	619.06	619.06	40.70	40.70	40.70	40.70	40.70	40.70	40.70	40.70
3		1.05	-8.87	9.92	38.34	597.62	597.27	597.27	10.98	10.98	10.98	10.98	10.98	10.98	10.98	10.98
4		-1.59	-8.75	7.16	35.42	544.94	544.13	544.13	-13.10	-13.10	-13.10	-13.10	-13.10	-13.10	-13.10	-13.10
5		-0.52	-9.10	8.58	37.07	543.81	542.63	542.63	-4.96	-4.96	-4.96	-4.96	-4.96	-4.96	-4.96	-4.96
6		0.89	-10.58	11.47	38.00	564.66	562.85	562.85	6.72	6.72	6.72	6.72	6.72	6.72	6.72	6.72
7		-1.33	-12.36	11.03	46.80	531.15	529.30	529.30	-12.33	-12.33	-12.33	-12.33	-12.33	-12.33	-12.33	-12.33
RAJIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CH1										
1		0.647	0.647	1.097	0.467	0.263										
2		0.651	0.651	1.139	0.384	0.297										
3		0.656	0.656	1.007	0.411	0.302										
4		0.625	0.625	0.912	0.407	0.350										
5		0.621	0.621	0.952	0.396	0.382										
6		0.659	0.659	0.968	0.398	0.371										
7		0.679	0.679	0.973	0.487	0.352										
RAJIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY HOMOEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF						
1		0.472	0.472	1.5230	0.113	0.037	0.5942	0.244	0.244	0.244						
2		0.513	0.513	1.5440	0.054	0.018	0.9229	0.277	0.277	0.277						
3		0.505	0.505	1.6310	0.041	0.012	0.7864	0.281	0.281	0.281						
4		0.467	0.467	1.7420	0.030	0.009	0.8313	0.329	0.329	0.329						
5		0.468	0.468	1.8800	0.028	0.007	0.9268	0.361	0.361	0.361						
6		0.486	0.486	2.0210	0.067	0.016	0.8552	0.347	0.347	0.347						
7		0.456	0.456	2.0980	0.101	0.024	0.6742	0.327	0.327	0.327						
RAJIAL POSITION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS						
1	5.0000	0.949	0.983	0.972	1.000	1.000	1.000	1.000	1.000	1.000						
2	10.0000	0.993	0.999	0.987	1.000	1.000	1.000	1.000	1.000	1.000						
3	30.0000	0.976	0.989	0.990	1.000	1.000	1.000	1.000	1.000	1.000						
4	50.0000	0.981	0.995	0.993	1.000	1.000	1.000	1.000	1.000	1.000						
5	70.0000	0.992	0.991	0.994	1.000	1.000	1.000	1.000	1.000	1.000						
6	90.0000	0.981	0.992	0.983	1.000	1.000	1.000	1.000	1.000	1.000						
7	95.0000	0.947	0.981	0.973	1.000	1.000	1.000	1.000	1.000	1.000						

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.5638 0.9876 0.9790
 Polytropic Efficiency = 0.8186 0.9728
 Percent Design Speed = 100.0 Discharge Valve Setting= 11.0
 Cor. Nozzle Weight Flow= 207.7
 I/F Check Flow/Noz.Flow = 0.9156 TE Check Flow/Noz.Flow = 0.8960
 Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

062470 **TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)**

ROTOR BLADE ROW		NASA TASK IV										
BLADE ELEMENT PERFORMANCE RESULTS												
POINT NUMBER	14	READING NUMBER	111	DATE	6/24/1970							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET REL VELOCITY	INLET AX VELOCITY	INLET ARS TANG VEL	INLET REL TANG VEL			
1	69.71	0.09	60.60	9.11	6.41	501.69	501.69	0.75	1357.13			
2	68.47	-1.16	59.61	8.86	5.83	1448.24	1448.24	-10.71	1336.67			
3	61.92	-2.22	56.01	5.91	1.45	1387.17	1387.17	-25.36	1228.82			
4	50.75	0.44	52.56	-4.81	-7.65	1371.58	1371.58	6.73	1060.85			
5	45.30	0.25	49.71	-4.41	-11.20	933.69	933.69	3.96	938.59			
6	46.99	-0.11	47.11	-0.22	-7.88	1103.28	1103.28	-1.48	788.36			
7	47.60	-0.64	46.13	1.47	-6.43	1039.83	1039.83	-7.67	749.90			
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS TANG VEL	EXIT REL TANG VEL			
1	62.95	54.71	54.80	8.05	6.87	399.56	399.56	584.54	778.98			
2	54.43	52.80	54.42	0.01	14.04	833.09	833.09	637.81	676.87			
3	52.07	48.02	50.68	1.39	9.84	499.63	499.63	555.20	641.19			
4	48.17	43.85	43.79	4.58	2.38	777.12	777.12	495.87	580.76			
5	42.40	42.20	32.15	10.25	2.91	514.24	514.24	478.88	478.88			
6	34.58	48.19	14.29	20.39	12.21	461.77	461.77	516.37	319.45			
7	24.26	54.60	8.00	16.26	23.34	434.10	434.10	610.89	195.62			
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL RATIO	SOLIDITY COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADD EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	EFFICIENCY	POLY MOMEN RISE/ STAY PRESS RISE COEFF
1	1357.97	0.498	1.313	0.796	1.3340	0.291	0.050	0.7349	0.7584	0.7848	0.453	0.446
2	1327.95	0.482	1.309	0.765	1.3690	0.267	0.057	0.7627	0.7848	0.7848	0.453	0.446
3	1198.46	0.607	1.289	0.765	1.5080	0.035	0.007	0.9637	0.9637	0.9670	0.453	0.446
4	1067.58	0.824	1.300	0.596	1.8840	0.114	0.022	0.8600	0.8600	0.8694	0.453	0.446
5	934.56	0.899	1.269	0.569	1.9060	0.051	0.010	0.9331	0.9331	0.9374	0.453	0.446
6	786.88	0.722	1.035	0.626	2.2170	0.125	0.023	0.8683	0.8683	0.8761	0.453	0.446
7	742.23	0.672	0.970	0.634	2.3390	0.145	0.028	0.8602	0.8602	0.8683	0.453	0.446
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	AXIAL RATIO	SOLIDITY COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADD EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	EFFICIENCY	POLY MOMEN RISE/ STAY PRESS RISE COEFF
1	1343.23	0.558	0.706	0.796	1.3340	0.291	0.050	0.7349	0.7584	0.7848	0.453	0.446
2	1314.68	0.552	0.677	0.765	1.3690	0.267	0.057	0.7627	0.7848	0.7848	0.453	0.446
3	1196.39	0.829	0.685	0.765	1.5080	0.035	0.007	0.9637	0.9637	0.9670	0.453	0.446
4	1076.53	0.611	0.663	0.596	1.8840	0.114	0.022	0.8600	0.8600	0.8694	0.453	0.446
5	955.58	0.613	0.614	0.569	1.9060	0.051	0.010	0.9331	0.9331	0.9374	0.453	0.446
6	835.62	0.603	0.490	0.626	2.2170	0.125	0.023	0.8683	0.8683	0.8761	0.453	0.446
7	806.52	0.653	0.419	0.634	2.3390	0.145	0.028	0.8602	0.8602	0.8683	0.453	0.446
RADIAL POSITION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	SOLIDITY COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADD EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	EFFICIENCY	POLY MOMEN RISE/ STAY PRESS RISE COEFF
1	5.0000	1.938	1.293	1.950	1.286	0.291	0.050	0.7349	0.7584	0.7848	0.453	0.446
2	10.0000	2.063	1.501	2.021	1.292	0.267	0.057	0.7627	0.7848	0.7848	0.453	0.446
3	30.0000	1.933	1.225	1.646	1.217	0.035	0.007	0.9637	0.9637	0.9670	0.453	0.446
4	50.0000	1.684	1.168	1.642	1.177	0.114	0.022	0.8600	0.8600	0.8694	0.453	0.446
5	70.0000	1.594	1.152	1.593	1.153	0.051	0.010	0.9331	0.9331	0.9374	0.453	0.446
6	90.0000	1.530	1.150	1.535	1.150	0.125	0.023	0.8683	0.8683	0.8761	0.453	0.446
7	93.0000	1.606	1.162	1.529	1.150	0.145	0.028	0.8602	0.8602	0.8683	0.453	0.446

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.6899 1.7275 1.7684
 0.7818 0.8173 0.8691
 0.7973 0.8308 0.8792
 Discharge Valve Setting= 6.5

PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6899
 Adiabatic Efficiency = 0.7818
 Polytropic Efficiency = 0.7973
 Percent Design Speed = 100.0
 Cor. Nozzle Weight Flow = 202.2

IE Check Flow/Noz. Flow = 1.0023
 Assumed IE Flow Coeff. = 0.9850
 TE Check Flow/Noz. Flow = 0.9034
 Assumed TE Flow Coeff. = 0.9400

062470

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW " NASA TASK IV										
BLADE ELEMENT PERFORMANCE RESULTS										
POINT NUMBER 14		READING NUMBER 111		DATE		6/24/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	54.57	52.27	39.47	15.10	13.16	695.35	403.10	495.30	566.58	640.13
2	46.15	41.38	39.01	7.14	69.43	554.67	532.87	557.19	554.67	490.94
3	39.58	45.64	40.86	-1.28	43.24	466.80	564.59	486.92	466.80	497.86
4	52.18	42.22	42.76	9.42	74.75	455.31	486.92	455.31	586.51	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN YE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	-1.74	4.31	-11.13	9.39	56.31	559.97	559.70	559.70	-16.98	
2	4.07	2.36	-10.10	14.41	47.96	595.02	593.30	593.30	44.68	
3	2.36	0.59	-8.87	12.94	42.08	551.84	523.94	523.94	39.11	
4	2.40	-1.69	-8.75	11.11	39.03	502.37	502.37	502.37	21.55	
5	0.607	0.607	-10.58	9.69	38.99	436.62	436.62	436.62	18.32	
6	0.646	0.646	-12.36	10.67	53.87	408.66	408.66	408.66	-12.07	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHI				
1	0.561	0.561	0.561	1.388	0.470	0.318				
2	0.658	0.658	0.658	1.198	0.503	0.277				
3	0.650	0.650	0.650	1.033	0.488	0.357				
4	0.638	0.638	0.638	0.940	0.474	0.428				
5	0.607	0.607	0.607	0.890	0.481	0.469				
6	0.646	0.646	0.646	0.897	0.538	0.540				
7				0.898	0.639	0.460				
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY	TOT PRESS LOSS PARAM	ABD EFFICIENCY	POLY MOMEN RISE/RISE	STAT PRESS COEFF		
1	0.492	0.480	0.480	1.5230	0.178	0.858	0.9502	0.302		
2	0.458	0.442	0.442	1.5440	0.173	0.856	0.6272	0.257		
3	0.428	0.428	0.428	1.6310	0.083	0.825	0.7430	0.334		
4	0.371	0.371	0.371	1.7420	0.043	0.812	0.8627	0.405		
5	0.347	0.347	0.347	1.8800	0.050	0.813	0.8886	0.445		
6				2.0510	0.092	0.822	0.8906	0.518		
7				2.0980	0.098	0.823	0.6701	0.435		
RADIAL POSITION	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	LOSS COEFFICIENT	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	OVERALL PERFORMANCE SUMMARY			
1	0.996	0.978	0.987	1.000	1.000	STAGE DATA STATOR DATA	STATOR DATA			
2	0.951	0.977	0.956	1.000	1.000	FIXED INST. FIXED INST. TRAV. INST.	FIXED INST. FIXED INST. TRAV. INST.			
3	0.964	0.994	0.979	1.000	1.000	Total Pressure Ratio =	1.6899	0.9782	0.9727	
4	0.981	0.994	0.990	1.000	1.000	Polytropic Efficiency =	0.7073	0.9597	0.8934	
5	0.983	0.994	0.988	1.000	1.000	Percent Design Speed =	100.0	Discharge Valve Setting=	6.5	
6	0.983	0.997	0.980	1.000	1.000	Cor. Nozzle Weight Flow=	208.2			
7	0.937	0.986	0.975	1.000	1.000	IE Check Flow/Noz. Flow =	0.9082	TE Check Flow/Noz. Flow =	0.9172	
						Assumed IE Flow Coeff. =	0.9500	Assumed TE Flow Coeff. =	0.9350	

062470 ROTOR BLADE ROW # NASH TASK IV
TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

RADIATION		BLADE ELEMENT PERFORMANCE RESULTS															STAGE DATA			
POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID LN AN	INCID AN	SUCT SURF AN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	DIFFUSION FACTOR	CH1
1	68.10	1.87	60.60	7.50	4.80	4.80	946.84	1459.44	542.36	17.74	1348.94	17.74	1348.94	542.36	1459.44	542.36	1348.94	17.74	0.539	0.539
2	66.92	0.77	59.61	7.31	4.28	4.28	968.27	1449.33	566.22	7.62	1326.95	7.62	1326.95	566.22	1449.33	566.22	1326.95	7.62	0.548	0.548
3	58.47	0.10	56.01	2.46	-2.00	-2.00	939.13	1413.54	739.11	1.33	1204.91	1.33	1204.91	739.11	1413.54	739.11	1204.91	1.33	0.619	0.619
4	47.64	1.01	52.56	-4.92	-10.76	-10.76	967.22	1433.00	964.29	17.03	1057.47	17.03	1057.47	964.29	1433.00	964.29	1057.47	17.03	0.663	0.663
5	42.84	0.69	49.71	-6.87	-13.66	-13.66	1015.35	1375.87	1001.21	12.06	928.56	12.06	928.56	1001.21	1375.87	1001.21	928.56	12.06	0.695	0.695
6	45.38	0.44	47.11	-1.73	-9.39	-9.39	1008.18	1327.32	775.68	6.02	785.96	6.02	785.96	775.68	1327.32	775.68	785.96	6.02	0.654	0.654
7	45.98	-0.45	46.13	-0.15	-8.05	-8.05	965.38	1073.50	727.48	-5.70	752.75	-5.70	752.75	727.48	1073.50	727.48	752.75	-5.70	0.663	0.663
1	60.34	47.92	54.80	5.54	7.76	7.76	906.00	955.15	472.27	523.09	829.16	472.27	829.16	472.27	955.15	472.27	829.16	523.09	0.502	0.502
2	55.02	46.98	54.42	0.60	11.91	11.91	976.78	923.84	529.12	567.11	756.11	529.12	756.11	529.12	923.84	529.12	756.11	567.11	0.508	0.508
3	52.28	44.37	50.68	3.60	6.20	6.20	941.89	864.76	538.27	518.67	685.48	538.27	685.48	538.27	864.76	538.27	685.48	518.67	0.516	0.516
4	49.74	40.49	43.79	5.95	-2.10	-2.10	900.43	824.22	532.62	454.72	628.90	454.72	628.90	532.62	824.22	532.62	628.90	454.72	0.550	0.550
5	43.22	40.50	32.15	11.07	-0.38	-0.38	906.46	737.12	536.14	457.88	503.89	457.88	503.89	536.14	737.12	536.14	503.89	457.88	0.554	0.554
6	32.90	44.71	14.29	18.61	12.48	12.48	928.94	618.87	513.91	508.80	332.44	508.80	332.44	513.91	618.87	513.91	332.44	508.80	0.613	0.613
7	24.78	50.24	8.00	16.78	21.19	21.19	970.02	547.50	487.91	586.46	225.29	586.46	225.29	487.91	547.50	487.91	225.29	586.46	0.613	0.613
1	1366.68	0.498	1.324	0.871	0.232	0.232	0.843	0.7722	0.7915	0.428	0.428	0.428	0.428	0.7915	0.7722	0.7915	0.428	0.428	0.440	0.440
2	1336.57	0.518	1.318	0.934	0.182	0.182	0.838	0.8230	0.8387	0.440	0.440	0.440	0.440	0.8387	0.8230	0.8387	0.440	0.440	0.528	0.528
3	1206.23	0.691	1.322	0.717	-0.009	-0.009	0.802	1.0101	1.0092	0.528	0.528	0.528	0.528	1.0092	1.0101	1.0092	0.528	0.528	0.585	0.585
4	1074.51	0.928	1.375	0.552	0.128	0.128	0.825	0.8254	0.8362	0.638	0.638	0.638	0.638	0.8362	0.8254	0.8362	0.638	0.638	0.666	0.666
5	940.62	0.987	1.338	0.535	0.072	0.072	0.814	0.8960	0.9021	0.666	0.666	0.666	0.666	0.9021	0.8960	0.9021	0.666	0.666	0.707	0.707
6	791.98	0.759	1.059	0.663	0.151	0.151	0.829	0.8298	0.8391	0.707	0.707	0.707	0.707	0.8391	0.8298	0.8391	0.707	0.707	0.707	0.707
7	747.04	0.715	1.003	0.671	0.156	0.156	0.830	0.8361	0.8450	0.707	0.707	0.707	0.707	0.8450	0.8361	0.8450	0.707	0.707	0.707	0.707
1	1352.25	0.574	0.777	1.3340	1.887	1.257	0.843	0.7722	0.7915	0.428	0.428	0.428	0.428	0.7915	0.7722	0.7915	0.428	0.428	0.440	0.440
2	1323.21	0.637	0.757	1.3690	1.948	1.255	0.838	0.8230	0.8387	0.440	0.440	0.440	0.440	0.8387	0.8230	0.8387	0.440	0.440	0.528	0.528
3	1204.15	0.624	0.729	1.5080	1.911	1.201	0.802	1.0101	1.0092	0.528	0.528	0.528	0.528	1.0092	1.0101	1.0092	0.528	0.528	0.585	0.585
4	1083.62	0.598	0.704	1.6840	1.911	1.169	0.825	0.8254	0.8362	0.638	0.638	0.638	0.638	0.8362	0.8254	0.8362	0.638	0.638	0.666	0.666
5	961.78	0.609	0.636	1.9060	1.941	1.143	0.814	0.8960	0.9021	0.707	0.707	0.707	0.707	0.9021	0.8960	0.9021	0.707	0.707	0.707	0.707
6	841.24	0.629	0.534	2.2170	1.541	1.147	0.829	0.8298	0.8391	0.707	0.707	0.707	0.707	0.8391	0.8298	0.8391	0.707	0.707	0.707	0.707
7	811.75	0.664	0.472	2.5390	1.485	1.143	0.830	0.8361	0.8450	0.707	0.707	0.707	0.707	0.8450	0.8361	0.8450	0.707	0.707	0.707	0.707
1	5.0000	1.898	1.275	1.887	1.257	1.257	0.843	0.7722	0.7915	0.428	0.428	0.428	0.428	0.7915	0.7722	0.7915	0.428	0.428	0.440	0.440
2	10.0000	1.977	1.272	1.948	1.255	1.255	0.838	0.8230	0.8387	0.440	0.440	0.440	0.440	0.8387	0.8230	0.8387	0.440	0.440	0.528	0.528
3	30.0000	1.870	1.219	1.911	1.201	1.201	0.802	1.0101	1.0092	0.528	0.528	0.528	0.528	1.0092	1.0101	1.0092	0.528	0.528	0.585	0.585
4	50.0000	1.615	1.155	1.977	1.169	1.169	0.825	0.8254	0.8362	0.638	0.638	0.638	0.638	0.8362	0.8254	0.8362	0.638	0.638	0.666	0.666
5	70.0000	1.532	1.143	1.541	1.147	1.147	0.814	0.8960	0.9021	0.707	0.707	0.707	0.707	0.9021	0.8960	0.9021	0.707	0.707	0.707	0.707
6	90.0000	1.502	1.147	1.487	1.145	1.145	0.829	0.8298	0.8391	0.707	0.707	0.707	0.707	0.8391	0.8298	0.8391	0.707	0.707	0.707	0.707
7	95.0000	1.563	1.162	1.485	1.143	1.143	0.830	0.8361	0.8450	0.707	0.707	0.707	0.707	0.8450	0.8361	0.8450	0.707	0.707	0.707	0.707

OVERALL PERFORMANCE SUMMARY

STAGE DATA		ROTOR DATA		ROTOR DATA	
FIXED INST.	FIXED INST.	TRAV.	INST.	TRAV.	INST.
1.6339	1.6639	1.6639	1.7111	1.6639	1.7111
0.7916	0.8231	0.7916	0.8593	0.7916	0.8593
0.8055	0.8353	0.8055	0.8353	0.8055	0.8353
Discharge Valve Setting= 9.0					
Percent Design Speed = 100.4		Cor. Nozzle Weight Flow= 209.9			
IE Check Flow/Noz.Flow = 0.9867		Assumed IE Flow Coeff. = 0.9830			
TE Check Flow/Noz.Flow = 0.8930		Assumed TE Flow Coeff. = 0.9200			

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV																
BLADE ELEMENT PERFORMANCE RESULTS																
POINT NUMBER 15 READING NUMBER 112 DATE 8/24/1970																
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG HN	INCID ANG LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	47.77	46.41	39.47	8.30	8.30	8.30	408.05	408.05	476.60	524.98	524.98	476.60	524.98	476.60	524.98	524.98
2	42.44	39.01	39.11	7.30	7.30	7.30	485.84	485.84	541.82	569.17	569.17	541.82	569.17	541.82	569.17	569.17
3	38.03	39.60	39.01	3.43	3.43	3.43	432.19	432.19	566.67	518.17	518.17	566.67	518.17	566.67	518.17	518.17
4	37.79	40.86	40.86	-3.07	-3.07	-3.07	435.23	435.23	575.64	450.20	450.20	575.64	450.20	575.64	450.20	450.20
5	42.07	42.22	42.22	-0.15	-0.15	-0.15	438.72	438.72	577.96	448.20	448.20	577.96	448.20	577.96	448.20	448.20
6	47.68	42.76	42.76	4.92	4.92	4.92	468.01	468.01	543.41	490.57	490.57	543.41	490.57	543.41	490.57	490.57
7									512.71	563.05	563.05	512.71	563.05	512.71	563.05	563.05

RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	DIFFUSION FACTOR	CHI
1	-0.35	-11.13	-11.13	10.78	48.11	553.23	553.23	553.23	-3.33	-3.33	0.464	0.284
2	3.31	-10.10	-10.10	13.41	43.10	593.78	593.78	593.78	34.31	34.31	0.464	0.269
3	2.73	-8.87	-8.87	11.60	39.71	661.02	661.02	661.02	27.66	27.66	0.439	0.317
4	-0.91	-8.75	-8.75	7.84	38.94	645.66	645.66	645.66	-8.64	-8.64	0.433	0.376
5	0.35	-9.10	-9.10	9.45	37.44	647.09	647.09	647.09	3.58	3.58	0.415	0.404
6	-0.58	-10.58	-10.58	10.00	42.66	496.84	496.84	496.84	-5.05	-5.05	0.488	0.433
7	-4.00	-12.36	-12.36	8.36	51.67	474.41	474.41	474.41	-32.95	-32.95	0.564	0.387

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY HOMOEN RISE/ RISE	STAT PRESS RISE COEFF
1	0.577	0.451	0.451	1.5230	0.177	0.858	0.7669	0.7669	0.1268	0.1268
2	0.645	0.486	0.486	1.5440	0.146	0.847	0.6616	0.6616	0.250	0.250
3	0.648	0.486	0.486	1.6310	0.059	0.818	0.7670	0.7670	0.296	0.296
4	0.627	0.462	0.462	1.7420	0.032	0.809	0.8595	0.8595	0.354	0.354
5	0.636	0.468	0.468	1.8800	0.038	0.810	0.9210	0.9210	0.381	0.381
6	0.638	0.423	0.423	2.0510	0.077	0.819	0.8042	0.8042	0.409	0.409
7	0.662	0.404	0.404	2.0980	0.098	0.823	0.6445	0.6445	0.362	0.362

RADIAL POSITION	PERCENT IMMERISION	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	LOSS COEFFICIENT	FIXED TOT TEMP RATIO
1	5.8000	0.970	0.965	1.000	0.177	1.000
2	18.0000	0.971	0.964	1.000	0.146	1.000
3	30.0000	0.982	0.985	1.000	0.059	1.000
4	50.0000	0.991	0.993	1.000	0.032	1.000
5	70.0000	0.990	0.991	1.000	0.038	1.000
6	90.0000	0.971	0.981	1.000	0.077	1.000
7	95.8000	0.937	0.974	1.000	0.098	1.000

OVERALL PERFORMANCE SUMMARY			
STAGE DATA	STATOR DATA	STATOR DATA	STATOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.	INST.
1.6339	0.9820	0.9750	
0.8055	0.9643		
Discharge Valve Setting=9.0			
Percent Design Speed = 100.4			
Cor. Nozzle Weight Flow= 209.9			
LE Check Flow/Noz.Flow = 0.8977			
Assumed LE Flow Coeff. = 0.9500			
TE Check Flow/Noz.Flow = 0.8913			
Assumed TE Flow Coeff. = 0.9350			

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV											
		BLADE ELEMENT PERFORMANCE RESULTS						ROTOR DATA					
		POINT NUMBER 18		READING NUMBER 117		DATE 6/24/1970		STAGE DATA		ROTOR DATA		ROTOR DATA	
RADIAL POSITION		ABS INLET FLOW ANG	INLET ANGLE	INCID ANGLE	INCID ANGLE	INCID ANGLE	INCID ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET REL ANG
1		66.28	1.89	60.60	5.68	2.98	2.35	594.38	1467.06	589.51	19.47	1341.40	
2		64.99	0.91	59.61	5.38	2.35	2.35	618.55	1458.72	616.31	9.77	1321.12	
3		56.59	0.64	56.01	0.58	-3.88	-3.88	986.59	1428.35	786.52	8.82	1192.29	
4		45.59	1.28	52.56	-6.97	-12.81	-12.81	1428.76	1467.65	1025.54	22.96	1046.98	
5		42.47	0.87	49.71	-7.24	-14.03	-14.03	1920.80	1375.05	1006.54	15.23	921.39	
6		44.36	0.91	47.11	-2.75	-10.41	-10.41	926.90	1133.92	793.57	12.62	775.99	
7		45.94	-0.18	46.13	-0.19	-8.09	-8.09	959.55	1064.69	721.96	-2.22	746.08	
RADIAL POSITION		REL EXIT FLOW ANG	REL ANGLE	REL ANGLE	REL ANGLE	REL ANGLE	REL ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT REL ANG
1		57.95	31.83	54.80	3.15	8.33	8.33	416.51	1145.27	607.09	376.88	969.61	
2		57.36	31.99	54.42	2.94	7.63	7.63	412.31	1118.66	602.76	376.46	941.13	
3		52.13	31.63	50.68	1.45	4.46	4.46	740.59	1027.16	630.43	386.27	810.76	
4		51.47	27.03	43.79	7.68	-5.88	-5.88	886.02	980.99	610.98	311.65	767.36	
5		44.49	31.65	32.15	12.34	-2.02	-2.02	709.47	841.23	599.07	369.21	588.47	
6		30.45	34.71	14.29	16.16	13.91	13.91	804.33	767.78	654.24	453.13	384.53	
7		29.37	39.54	8.00	21.37	16.57	16.57	965.20	679.70	582.124	480.56	327.73	
RADIAL POSITION		ROTOR SPD AT INLET	INLET REL MACH NO	AXIAL RATIO	REL DEV ANGLE	REL TURN ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT REL ANG
1		1362.87	0.546	1.030	3.15	8.33	8.33	416.51	1145.27	607.09	376.88	969.61	
2		1330.89	0.570	0.978	2.94	7.63	7.63	412.31	1118.66	602.76	376.46	941.13	
3		1201.11	0.744	0.802	1.45	4.46	4.46	740.59	1027.16	630.43	386.27	810.76	
4		1059.94	1.000	0.596	7.68	-5.88	-5.88	886.02	980.99	610.98	311.65	767.36	
5		935.62	1.000	0.595	12.34	-2.02	-2.02	709.47	841.23	599.07	369.21	588.47	
6		788.62	0.784	0.824	16.16	13.91	13.91	804.33	767.78	654.24	453.13	384.53	
7		743.87	0.713	0.866	21.37	16.57	16.57	965.20	679.70	582.124	480.56	327.73	
RADIAL POSITION		ROTOR SPD AT EXIT	EXIT ABS MACH NO	SOLIDITY	COEFFICIENT	LOSS	LOSS	LOSS	LOSS	POLY MOMEN RISE/ EFFICIENCY	STAT RISE COEFF	DIFFUSION FACTOR	CHI
1		1346.90	0.608	1.3340	0.184	0.837	0.837	0.7529	0.7677	0.7677	0.267	0.370	
2		1317.59	0.611	1.3690	0.088	0.817	0.817	0.8852	0.8852	0.8852	0.287	0.390	
3		1199.03	0.644	1.5080	-0.005	-0.001	-0.001	1.0072	1.0067	1.0067	0.372	0.469	
4		1079.01	0.802	1.6840	0.150	0.828	0.828	0.7145	0.7259	0.7259	0.444	0.538	
5		957.69	0.820	1.8060	0.142	0.827	0.827	0.7275	0.7378	0.7378	0.475	0.548	
6		837.67	0.710	2.2170	0.172	0.833	0.833	0.7709	0.7809	0.7809	0.495	0.497	
7		805.30	0.669	2.3390	0.216	0.840	0.840	0.7342	0.7452	0.7452	0.514	0.481	
RADIAL POSITION		TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT TEMP RATIO	LOSS	LOSS	LOSS	LOSS	POLY MOMEN RISE/ EFFICIENCY	STAT RISE COEFF	DIFFUSION FACTOR	CHI
1		9.0000	1.596	1.191	1.549	0.177	0.177	0.7529	0.7677	0.7677	0.267	0.370	
2		10.0000	1.608	1.163	1.597	1.163	1.163	0.8852	0.8852	0.8852	0.287	0.390	
3		30.8000	1.586	1.155	1.619	1.147	1.147	1.0067	1.0067	1.0067	0.372	0.469	
4		50.0000	1.384	1.099	1.335	1.120	1.120	0.7145	0.7259	0.7259	0.444	0.538	
5		70.8000	1.321	1.111	1.312	1.111	1.111	0.7275	0.7378	0.7378	0.475	0.548	
6		90.0000	1.427	1.131	1.374	1.123	1.123	0.7709	0.7809	0.7809	0.495	0.497	
7		95.0000	1.403	1.141	1.346	1.121	1.121	0.7342	0.7452	0.7452	0.514	0.481	

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.3702 1.4109 1.4681
 Adiabatic Efficiency = 0.6928 0.7604 0.8453
 Polytropic Efficiency = 0.7061 0.7717 0.8535
 Percent Design Speed = 100.2 Discharge Valve Setting= 30.0
 Cor. Nozzle Weight Flow= 215.4
 IE Check Flow/Noz.Flow = 0.9862 TE Check Flow/Noz.Flow = 0.9142
 Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9700

082470 STATOR BLADE ROW • NASM TASK IV
 TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

BLADE ELEMENT PERFORMANCE RESULTS										
POINT NUMBER		18		READING NUMBER		115		DATE		
6/24/1970										
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	31.67	31.41	39.47	-7.80		820.49	513.21	618.73	378.24	377.83
2	29.66	29.41	39.11	-9.25		884.41	681.30	881.30	387.90	387.90
3	24.81	24.81	39.80	-14.99		837.15	667.40	667.40	308.55	308.55
4	29.04	29.04	40.86	-11.82		849.43	651.06	651.06	361.41	361.41
5	31.93	31.93	42.22	-10.29		835.88	701.13	701.13	436.89	436.89
6	36.88	36.88	42.76	-5.88		877.99	614.90	614.90	461.38	461.38
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	3.23	4.73	-11.13	14.756	28.43	836.18	635.16	635.16	35.90	35.90
2	4.73	2.61	-10.10	14.983	26.68	897.40	694.99	694.99	57.53	57.53
3	2.61	-1.61	-8.87	11.48	27.05	803.59	702.57	702.57	31.97	31.97
4	-1.61	-1.05	-8.75	7.14	26.42	868.55	668.54	668.54	-18.80	-18.80
5	2.20	1.91	-9.10	8.05	30.69	878.79	677.23	677.23	-12.43	-12.43
6	1.91		-10.58	12.778	29.73	802.00	798.94	798.94	30.73	30.73
7			-12.36	14.27	34.97	872.52	769.61	769.61	25.68	25.68
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CH1				
1	0.611	0.611	0.611	1.036	0.273	-0.013				
2	0.623	0.623	0.623	1.123	0.181	0.002				
3	0.685	0.685	0.685	1.031	0.242	0.055				
4	0.650	0.650	0.650	1.002	0.218	0.045				
5	0.662	0.662	0.662	1.040	0.226	0.026				
6	0.741	0.741	0.741	1.140	0.156	-0.114				
7	0.681	0.681	0.681	1.252	0.138	-0.191				
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF		
1	0.541	0.541	0.541	0.203	0.866	-0.0639	-0.0639	-0.012		
2	0.600	0.600	0.600	0.088	0.829	0.0239	0.0239	0.001		
3	0.610	0.610	0.610	0.086	0.826	0.2875	0.2875	0.049		
4	0.586	0.586	0.586	0.111	0.832	0.2570	0.2570	0.041		
5	0.597	0.597	0.597	0.118	0.831	0.1487	0.1487	0.023		
6	0.711	0.711	0.711	0.104	0.825	-1.6338	-1.6338	-0.098		
7	0.683	0.683	0.683	0.137	0.833	32.1528	32.1528	-0.166		
RADIAL POSITION	PERCENTAGE DISCREPANCY	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	LOSS COEFFICIENT	FIXED TOT TEMP RATIO				
1	5.0000	0.945	0.92	0.954	1.000	1.000				
2	10.0000	0.982	0.92	0.980	1.000	1.000				
3	30.0000	0.956	0.997	0.976	1.000	1.000				
4	50.0000	0.962	1.002	0.972	1.000	1.000				
5	70.0000	0.956	0.994	0.970	1.000	1.000				
6	90.0000	0.931	0.991	0.967	1.000	1.000				
7	95.0000	0.941	0.981	0.963	1.000	1.000				

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.3702 0.9712 0.9565
 Polytropic Efficiency = 0.7061 0.9150
 Percent Design Speed = 100.2 Discharge Valve Setting= 30.0
 Cor. Nozzle Weight Flow= 215.4
 LE Check Flow/Noz.Flow = 0.9190 TE Check Flow/Noz.Flow = 0.8875
 Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

RADIAL POSITION		REL INLET FLOW ANG		ABS INLET FLOW ANG		CHBR LN LE ANGLE		INCID ANG MN_CHBR LN		INCID SURF SUCT SURF		INLET ABS VELOCITY		INLET REL VELOCITY		INLET AX VELOCITY		INLET ABS YANG VEL		INLET REL YANG VEL	
1	1	62.56	0.00	0.00	0.00	60.90	5.96	3.26	592.27	1479.54	587.73	0.00	0.00	1353.82	0.00	0.00	0.00	0.00	1353.82	0.00	0.00
2	2	65.15	-0.09	0.09	0.09	59.01	5.54	2.51	616.77	1468.23	614.61	-1.00	-1.00	1326.94	1.00	1.00	1.00	1.00	1326.94	1.00	1.00
3	3	58.88	2.06	2.06	2.06	56.01	-0.13	-4.59	751.92	1411.02	791.39	28.46	28.46	1168.18	28.46	28.46	28.46	28.46	1168.18	28.46	28.46
4	4	45.16	2.16	2.16	2.16	52.56	-7.40	-13.24	1825.52	1451.12	1021.84	38.56	38.56	1027.40	38.56	38.56	38.56	38.56	1027.40	38.56	38.56
5	5	42.34	0.85	0.85	0.85	49.71	-7.37	-14.16	1021.86	1373.71	1007.59	14.93	14.93	916.21	14.93	14.93	14.93	14.93	916.21	14.93	14.93
6	6	44.25	0.48	0.48	0.48	47.11	-2.86	-10.52	833.12	1140.53	799.61	6.73	6.73	778.95	6.73	6.73	6.73	6.73	778.95	6.73	6.73
7	7	45.55	0.61	0.61	0.61	46.13	-0.58	-8.48	857.02	1054.06	719.53	7.60	7.60	733.50	7.60	7.60	7.60	7.60	733.50	7.60	7.60

RADIAL POSITION		REL EXIT FLOW ANG		ABS EXIT FLOW ANG		CHBR LN TE ANGLE		REL DEV ANGLE TE		REL TURN ANGLE		EXIT ABS VELOCITY		EXIT REL VELOCITY		EXIT AX VELOCITY		EXIT ABS YANG VEL		EXIT REL YANG VEL	
1	1	56.77	3.24	3.24	3.24	54.80	1.97	9.80	737.27	1128.29	614.90	403.06	403.06	938.44	403.06	403.06	403.06	403.06	938.44	403.06	403.06
2	2	55.58	30.18	30.18	30.18	54.82	2.16	8.57	755.93	1137.71	626.03	364.04	364.04	948.65	364.04	364.04	364.04	364.04	948.65	364.04	364.04
3	3	51.21	31.97	31.97	31.97	50.68	1.53	3.67	735.98	1018.80	624.52	389.56	389.56	805.01	389.56	389.56	389.56	389.56	805.01	389.56	389.56
4	4	50.79	28.92	28.92	28.92	43.79	7.00	-5.63	890.84	958.83	604.57	334.02	334.02	748.99	334.02	334.02	334.02	334.02	748.99	334.02	334.02
5	5	43.21	31.10	31.10	31.10	32.15	11.06	-0.87	724.18	850.12	618.50	479.09	479.09	555.46	479.09	479.09	479.09	479.09	555.46	479.09	479.09
6	6	25.59	35.16	35.16	35.16	14.39	13.30	16.66	840.67	778.89	680.09	540.13	540.13	269.16	540.13	540.13	540.13	540.13	269.16	540.13	540.13
7	7	25.44	41.45	41.45	41.45	8.00	15.44	22.11	826.47	679.43	611.65	540.13	540.13	269.16	540.13	540.13	540.13	540.13	269.16	540.13	540.13

RADIAL POSITION		ROTOR SPD AT INLET		INLET REL MACH NO		AXIAL VFL RATIO		SOLIDITY		LOSS COEFFICIENT		TOT PRESS LOSS PARAM		EFFICIENCY		POLY MOMEN RISE/ RISE		STAY PRESS COEFF		DIFFUSION CHI	
1	1	1358.82	0.545	1.331	1.331	1.046	1.330	1.330	0.100	0.021	0.8566	0.8566	0.8566	0.258	0.342	0.361	0.361	0.361	0.361	0.361	0.361
2	2	1725.94	0.570	1.353	1.353	1.519	1.359	1.359	0.033	0.107	0.9519	0.9519	0.9519	0.274	0.313	0.376	0.376	0.376	0.376	0.376	0.376
3	3	1196.64	0.749	1.335	1.335	0.789	1.508	1.508	0.014	0.103	0.9797	0.9797	0.9797	0.369	0.363	0.464	0.464	0.464	0.464	0.464	0.464
4	4	1045.96	1.001	1.416	1.416	0.592	1.684	1.684	0.166	0.031	0.6915	0.6915	0.6915	0.468	0.402	0.561	0.561	0.561	0.561	0.561	0.561
5	5	933.14	1.000	1.344	1.344	0.614	1.906	1.906	0.149	0.029	0.7258	0.7258	0.7258	0.474	0.450	0.547	0.547	0.547	0.547	0.547	0.547
6	6	785.68	0.791	1.062	1.062	0.851	2.250	2.250	0.184	0.037	0.7517	0.7517	0.7517	0.431	0.415	0.436	0.436	0.436	0.436	0.436	0.436
7	7	741.10	0.712	0.991	0.991	0.850	2.390	2.390	0.203	0.040	0.7557	0.7557	0.7557	0.420	0.468	0.386	0.386	0.386	0.386	0.386	0.386

RADIAL POSITION		ROTOR SPD AT EXIT		EXIT REL MACH NO		YRAT TOT PRESS RATIO		FIXED TOT PRESS RATIO		TEMP RATIO		PERCENT DESIGN SPEED		COR. NOZZLE WEIGHT FLOW	
1	1	1341.49	0.632	0.922	0.922	1.177	1.177	1.177	1.162	1.162	1.162	99.9	216.0		
2	2	1315.69	0.628	0.984	0.984	1.614	1.614	1.614	1.154	1.154	1.154	99.9	216.0		
3	3	1194.57	0.640	0.886	0.886	1.596	1.596	1.596	1.124	1.124	1.124	99.9	216.0		
4	4	1078.00	0.606	0.819	0.819	1.332	1.332	1.332	1.112	1.112	1.112	99.9	216.0		
5	5	953.13	0.638	0.748	0.748	1.339	1.339	1.339	1.112	1.112	1.112	99.9	216.0		
6	6	836.56	0.746	0.689	0.689	1.408	1.408	1.408	1.131	1.131	1.131	99.9	216.0		
7	7	803.29	0.729	0.659	0.659	1.388	1.388	1.388	1.114	1.114	1.114	99.9	216.0		

STAGE DATA		ROTOR DATA		ROTOR DATA	
FIXED INST. FIXED INST.		TRAV. INST.		INST.	
1.3732	1.4095	1.4095	1.4677	1.4677	1.4677
0.7063	0.7673	0.7673	0.8499	0.8499	0.8499
0.7191	0.7783	0.7783	0.8576	0.8576	0.8576

OVERALL PERFORMANCE SUMMARY	
Discharge Valve Setting	= 30.0
Percent Design Speed	= 99.9
Cor. Nozzle Weight Flow	= 216.0
TE Check Flow/Noz.Flow	= 0.9173
Assumed LE Flow Coeff.	= 0.9500
Assumed TE Flow Coeff.	= 0.9700

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

081970		STATOR BLADE ROW - NASR TASK IV											
		BLADE ELEMENT PERFORMANCE RESULTS					DATE 8/18/1970						
		POINT NUMBER	26	READING NUMBER	253	DATE							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCLD ANG MN CHBR LN	INCLD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL			
1	33.07	39.47	-0.40	14.51	29.69	836.46	741.28	621.17	404.51	37.54			
2	29.60	39.11	-9.51	12.50	27.20	899.68	643.20	643.20	389.36	29.27			
3	30.00	39.01	-9.01	10.709	28.78	702.26	778.77	701.81	330.69	14.94			
4	26.62	39.80	-13.18	7.27	28.10	857.77	659.76	659.76	330.69	-16.93			
5	28.45	40.86	-12.41	7.64	29.91	878.10	674.18	674.18	365.27	-17.21			
6	32.26	42.22	-9.96	12.07	30.77	790.83	731.93	731.93	461.92	20.48			
7	38.67	42.76	-4.09	13.18	37.86	767.35	647.88	764.80	518.58	10.93			
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL			
1	3.38	11.13	-11.13	14.51	29.69	836.46	635.34	635.34	37.54	37.54			
2	2.40	10.10	-10.10	12.50	27.20	899.68	699.23	699.23	29.27	29.27			
3	1.22	8.67	-8.67	10.709	28.78	702.26	701.81	701.81	14.94	14.94			
4	-1.48	-8.75	-8.75	7.27	28.10	857.77	658.82	658.82	-16.93	-16.93			
5	-1.46	-9.10	-9.10	7.64	29.91	878.10	676.43	676.43	-17.21	-17.21			
6	1.49	-10.58	-10.58	12.07	30.77	790.83	788.13	788.13	20.48	20.48			
7	0.82	-12.36	-12.36	13.18	37.86	767.35	764.80	764.80	10.93	10.93			
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ RISE COEFF	STAT PRESS	
1	5.0000	0.635	0.544	1.5230	0.171	0.056	0.171	0.056	0.4301	0.029	0.029	0.029	
2	10.0000	0.641	0.605	1.5440	0.066	0.021	0.066	0.021	0.4911	0.046	0.046	0.046	
3	30.0000	0.681	0.609	1.6310	0.059	0.018	0.059	0.018	0.4355	0.072	0.072	0.072	
4	50.0000	0.652	0.574	1.7420	0.097	0.028	0.097	0.028	0.3412	0.065	0.065	0.065	
5	70.0000	0.683	0.596	1.8800	0.117	0.031	0.117	0.031	0.2769	0.055	0.055	0.055	
6	90.0000	0.780	0.700	2.0510	0.101	0.025	0.101	0.025	0.1214	0.018	0.018	0.018	
7	95.0000	0.741	0.678	2.0780	0.115	0.027	0.115	0.027	0.0748	0.011	0.011	0.011	
RADIAL POSITION	PERCENTAGE CORRECTION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ RISE COEFF	STAT PRESS
1	5.0000	0.941	0.984	0.959	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2	10.0000	0.985	0.998	0.984	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
3	30.0000	0.967	0.998	0.984	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4	50.0000	0.960	1.004	0.975	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5	70.0000	0.949	1.003	0.968	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6	90.0000	0.936	0.991	0.965	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
7	95.0000	0.949	0.982	0.964	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.3732 0.9742 0.9584
 0.7191 0.9239 0.4028
 Discharge Valve Setting = 30.0
 Percent Design Speed = 99.9
 Cor. Nozzle Weight Flow = 216.0
 IE Check Flow/Noz.Flow = 0.9221 TE Check Flow/Noz.Flow = 0.8834
 Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASR TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 27		READING NUMBER 254		DATE 8/18/1970		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET REL VELOCITY	INLET ABS VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	67.37	-0.59	60.60	6.77	4.07	1476.11	571.67	567.26	-5.89	1368.99
2	65.64	-0.85	59.61	6.03	3.00	1465.57	606.44	604.25	-8.99	1334.24
3	57.18	2.10	56.01	1.17	-3.29	1390.38	754.19	753.66	27.63	1168.39
4	50.00	2.17	52.56	-2.56	-8.40	1349.45	866.31	866.31	32.85	1032.56
5	43.79	0.89	49.71	-5.92	-12.71	1336.00	971.01	957.44	14.91	917.74
6	44.88	0.97	47.11	-2.23	-9.89	1125.21	813.43	780.70	7.79	777.48
7	45.93	0.50	46.13	-0.20	-8.10	1048.32	748.05	711.01	6.26	734.46
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL BVF ANGLE	REL TURN ANGLE	EXIT REL VELOCITY	EXIT ABS VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	56.84	46.43	54.80	2.04	10.54	950.53	955.01	519.36	546.03	794.75
2	55.59	43.24	54.42	1.17	10.04	968.23	951.55	546.55	513.99	798.01
3	51.84	40.78	50.68	1.16	5.34	905.08	938.63	559.15	482.39	711.55
4	49.64	38.64	43.79	6.05	0.16	839.57	893.21	541.35	432.82	641.62
5	42.56	38.51	32.15	10.41	1.23	756.84	712.54	556.42	442.68	510.95
6	31.53	42.14	14.29	17.24	13.35	651.82	647.23	549.27	497.07	337.04
7	24.08	48.48	8.00	16.08	21.85	569.86	677.98	510.58	576.70	228.17
RADIAL POSITION	ROTOR SPD AT EXIT	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	EFFICIENCY	TOT PRESS LOSS PARAM	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR
1	1340.79	0.524	1.392	0.916	0.134	0.8539	0.027	0.8660	0.385	0.497
2	1312.00	0.559	1.351	0.905	0.101	0.8898	0.021	0.8992	0.399	0.511
3	1193.95	0.630	1.307	0.742	-0.006	1.0063	0.001	1.0069	0.500	0.591
4	1074.44	0.597	1.272	1.6840	0.155	0.7918	0.030	0.8037	0.588	0.466
5	953.63	0.620	1.294	1.9060	0.130	0.8112	0.025	0.8212	0.604	0.518
6	834.12	0.652	1.063	2.2170	0.155	0.8179	0.030	0.8274	0.604	0.599
7	804.87	0.677	0.982	2.3390	0.136	0.8571	0.026	0.8648	0.600	0.578
RADIAL POSITION	PERCENT HUMIDIFICATION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY				
1	5.0000	1.906	1.238	1.850	1.225	STAGE DATA ROTOR DATA ROTOR DATA				
2	10.0000	1.892	1.222	1.886	1.223	FIXED INST. FIXED INST. TRAV. INST.				
3	30.0000	1.775	1.194	1.825	1.186	PERFORMANCE PARAMETERS				
4	50.0000	1.570	1.147	1.814	1.159	Total Pressure Ratio =				
5	70.0000	1.486	1.136	1.473	1.144	Adiabatic Efficiency =				
6	90.0000	1.465	1.140	1.459	1.139	Polytropic Efficiency =				
7	98.0000	1.517	1.182	1.478	1.138	Percent Design Speed = 99.8				
						Cor. Nozzle Weight Flow = 211.8				
						Discharge Valve Setting= 11.0				
						IE Check Flow/Noz.Flow = 0.9801				
						Assumed IE Flow Coeff. = 0.9850				
						TE Check Flow/Noz.Flow = 0.9065				
						Assumed TE Flow Coeff. = 0.9700				

081970

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW - NASA TASK IV										
		BLADE ELEMENT PERFORMANCE RESULTS					POINT NUMBER 27					
		READING NUMBER	DATE	PERFORMANCE RESULTS		PERFORMANCE RESULTS		PERFORMANCE RESULTS		PERFORMANCE RESULTS		
		254	8718/1970	254	8718/1970	254	8718/1970	254	8718/1970	254	8718/1970	
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCY SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	
1		46.27	42.65	39.47	67.80	67.80	524.24	524.24	546.01	546.01		
2		42.65	39.47	39.11	37.54	37.54	560.03	560.03	515.85	515.85		
3		39.47	37.54	39.01	-0.20	-0.20	599.15	599.15	481.93	481.93		
4		37.54	39.01	39.80	37.61	37.61	585.76	585.76	428.51	428.51		
5		39.80	39.80	40.86	-5.68	-5.68	601.31	601.31	433.32	433.32		
6		40.86	40.86	42.22	-2.77	-2.77	582.35	582.35	479.26	479.26		
7		42.22	42.22	42.76	3.10	3.10	537.22	537.22	553.68	553.68		
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	
1		2.94	4.18	-11.13	14.07	43.33	570.44	570.44	29.31	29.31		
2		4.18	-0.04	-10.10	14.28	38.47	617.78	617.78	45.16	45.16		
3		-0.04	-5.52	-8.87	8.83	38.85	586.50	586.50	-0.40	-0.40		
4		-5.52	-0.83	-8.75	7.23	37.71	545.15	545.15	-14.48	-14.48		
5		-0.83	1.51	-9.10	8.27	36.41	559.85	559.85	-6.09	-6.09		
6		1.51	-0.75	-10.58	12.09	37.95	568.94	568.94	14.80	14.80		
7		-0.75		-12.36	11.61	46.61	546.38	546.38	-7.05	-7.05		
RADIAL POSITION		ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY EFFICIENCY	MOYEN RISE	STAT PRESS RISE COEFF	
1		0.632	0.641	0.632	1.006	0.138	0.045	0.5829	0.5829	0.276	0.276	
2		0.641	0.658	0.641	1.103	0.087	0.028	0.7893	0.7893	0.245	0.245	
3		0.658	0.628	0.628	0.979	0.067	0.021	0.7577	0.7577	0.291	0.291	
4		0.628	0.650	0.650	0.931	0.029	0.008	0.8411	0.8411	0.343	0.343	
5		0.650	0.665	0.665	0.981	0.032	0.009	0.6719	0.6719	0.353	0.353	
6		0.665	0.678	0.678	0.967	0.071	0.017	0.6381	0.6381	0.348	0.348	
7		0.678			1.006	0.099	0.023	0.6950	0.6950	0.324	0.324	
RADIAL POSITION		PERCENT DEFORMATION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY EFFICIENCY	MOYEN RISE	STAT PRESS RISE COEFF
1		5.0000	0.953	0.981	1.000	1.000	0.138	0.045	0.5829	0.5829	0.276	0.276
2		10.0000	0.980	0.979	1.000	1.000	0.087	0.028	0.7893	0.7893	0.245	0.245
3		30.0000	0.970	0.983	1.000	1.000	0.067	0.021	0.7577	0.7577	0.291	0.291
4		50.0000	0.961	0.996	1.000	1.000	0.029	0.008	0.8411	0.8411	0.343	0.343
5		70.0000	0.984	1.001	1.000	1.000	0.032	0.009	0.6719	0.6719	0.353	0.353
6		90.0000	0.978	0.995	1.000	1.000	0.071	0.017	0.6381	0.6381	0.348	0.348
7		95.0000	0.952	0.985	1.000	1.000	0.099	0.023	0.6950	0.6950	0.324	0.324

OVERALL PERFORMANCE SUMMARY

SPACE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.5775 0.9838 0.9746
 Polytropic Efficiency = 0.8035 0.9655 0.8719
 Percent Design Speed = 99.8 Discharge Valve Setting= 11.0
 Cor. Nozzle Weight Flow= 211.8
 LE Check Flow/Noz.Flow = 0.9113 TE Check Flow/Noz.Flow = 0.8817
 Assumed LE Flow Coeff. = 0.9700 Assumed TE Flow Coeff. = 0.9350

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS										STAGE DATA ROTOR DATA ROTOR DATA									
POINT NUMBER 28		READING NUMBER 255					DATE 8/18/1970					FIXED INST. FIXED INST. TRAV. INST.					TRAV. INST.				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	EXIT ABS VELOCITY	INLET REL VELOCITY	EXIT REL VELOCITY	INLET AX VELOCITY	EXIT AX VELOCITY	INLET ABS YANG VEL	EXIT ABS YANG VEL	INLET REL YANG VEL	EXIT REL YANG VEL	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF	STAGE DATA ROTOR DATA ROTOR DATA	FIXED INST. TRAV. INST.	TRAV. INST.	
1	69.08	-1.95	60.60	6.48	5.78	530.336	1474.0	1474.0	1456.76	525.99	525.99	-17.92	1376.15	1376.15	0.405	0.405	1.6463	1.6777	1.7260	1.7260	
2	67.71	-1.96	59.61	6.10	5.07	554.60	1392.87	1392.87	1376.54	519.18	519.18	5.95	1192.83	1192.83	0.512	0.512	0.7944	0.8269	0.8845	0.8845	
3	58.91	0.47	56.01	2.90	-1.56	492.98	1376.54	1376.54	1348.26	890.18	890.18	20.08	1047.78	1047.78	0.682	0.682	0.8083	0.8390	0.8930	0.8930	
4	49.65	1.29	52.56	-2.91	-8.75	476.129	1113.92	1113.92	1032.27	758.91	758.91	4.91	926.89	926.89	0.623	0.623	100.0	100.0	100.0	100.0	
5	44.01	0.29	49.71	-5.70	-12.49	476.129	1113.92	1113.92	1032.27	758.91	758.91	4.91	926.89	926.89	0.623	0.623	100.0	100.0	100.0	100.0	
6	46.06	-0.03	47.11	-1.05	-8.71	476.129	1113.92	1113.92	1032.27	758.91	758.91	4.91	926.89	926.89	0.623	0.623	100.0	100.0	100.0	100.0	
7	46.73	0.74	46.13	0.60	-7.30	476.129	1113.92	1113.92	1032.27	758.91	758.91	4.91	926.89	926.89	0.623	0.623	100.0	100.0	100.0	100.0	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN YE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT ABS YANG VEL	EXIT REL YANG VEL	EXIT REL YANG VEL	DIFFUSION FACTOR	CHI				
1	57.56	52.79	54.80	2.76	11.52	769.94	867.79	867.79	894.39	464.92	464.92	612.32	731.57	731.57	0.571	0.571					
2	54.61	48.59	54.42	0.19	13.10	763.40	851.07	851.07	851.07	517.45	517.45	586.72	728.32	728.32	0.525	0.525					
3	51.75	45.09	50.68	1.07	7.16	746.30	851.07	851.07	851.07	526.82	526.82	528.43	668.27	668.27	0.513	0.513					
4	49.70	42.29	43.79	4.91	0.95	710.98	798.90	798.90	798.90	523.90	523.90	478.31	598.61	598.61	0.551	0.551					
5	41.65	40.95	32.15	9.50	2.36	721.66	729.33	729.33	729.33	543.95	543.95	472.09	483.74	483.74	0.575	0.575					
6	32.23	46.40	14.29	17.94	13.83	726.83	594.72	594.72	594.72	497.49	497.49	522.44	313.61	313.61	0.623	0.623					
7	22.66	52.13	8.00	14.66	24.07	778.13	523.14	523.14	523.14	473.58	473.58	609.02	197.71	197.71	0.660	0.660					
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VFL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ABB EFFICIENCY	EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF										
1	1358.23	0.483	1.342	0.884	1.3340	0.180	0.036	0.8214	0.8372	0.8372	0.405										
2	1328.31	0.507	1.331	0.937	1.3690	0.154	0.033	0.8488	0.8625	0.8625	0.416										
3	1193.78	0.673	1.303	0.733	1.5080	0.021	0.004	0.9777	0.9796	0.9796	0.512										
4	1067.96	0.850	1.310	0.591	1.6840	0.149	0.029	0.8105	0.8225	0.8225	0.586										
5	934.80	0.945	1.306	0.365	1.9040	0.086	0.017	0.8783	0.8855	0.8855	0.627										
6	787.09	0.745	1.031	0.656	2.2170	0.119	0.023	0.8664	0.8739	0.8739	0.652										
7	742.42	0.679	0.965	0.686	2.3390	0.109	0.021	0.8944	0.9006	0.9006	0.714										
RADIAL POSITION	PERCENT IMMERSE	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY															
1	5.0000	1.989	1.270	1.254	1.254	STAGE DATA ROTOR DATA ROTOR DATA															
2	10.0000	1.989	1.256	1.254	1.254	FIXED INST. FIXED INST. TRAV. INST.															
3	30.0000	1.846	1.211	1.204	1.204	Total Pressure Ratio = 1.6463 1.6777 1.7260															
4	50.0000	1.649	1.161	1.175	1.175	Adiabatic Efficiency = 0.7944 0.8269 0.8845															
5	70.0000	1.554	1.144	1.149	1.149	Polytropic Efficiency = 0.8083 0.8390 0.8930															
6	90.0000	1.499	1.151	1.143	1.143	Percent Design Speed = 100.0 Discharge Valve Setting = 8.2															
7	95.0000	1.377	1.162	1.146	1.146	Cor. Nozzle Weight Flow = 207.1															

LE Check Flow/Noz.Flow = 0.9936
 Assumed LE Flow Coeff. = 0.9850
 TE Check Flow/Noz.Flow = 0.9067
 Assumed TE Flow Coeff. = 0.9500

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 TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASR TASK IV														
BLADE ELEMENT PERFORMANCE RESULTS														
POINT NUMBER		28		READING NUMBER		255		DATE		8718/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	INLET LE ANGLE	CMBR LN	INCID ANGLE	HN	CMBR LN	INCID ANGLE	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	52.64	39.11	87.91	13.17	13.17	87.91	87.91	87.91	87.91	87.91	87.91	87.91	87.91	87.91
2	48.02	39.01	47.15	47.15	47.15	47.15	47.15	47.15	47.15	47.15	47.15	47.15	47.15	47.15
3	43.16	39.80	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95	40.95
4	38.81	40.86	-2.85	-2.85	-2.85	-2.85	-2.85	-2.85	-2.85	-2.85	-2.85	-2.85	-2.85	-2.85
5	38.21	43.78	42.22	42.22	42.22	42.22	42.22	42.22	42.22	42.22	42.22	42.22	42.22	42.22
6	43.78	42.76	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85
7	49.61	42.76	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85	67.85
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	TE ANGLE	CMBR LN	DEV ANGLE	VE	CMBR LN	INCID ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	3.00	14.13	-11.13	14.13	14.13	14.13	14.13	14.13	49.64	568.40	568.40	568.40	29.77	29.77
2	5.87	10.10	-6.87	10.10	15.97	15.97	15.97	15.97	42.15	598.39	598.39	598.39	61.55	61.55
3	0.72	0.72	-6.87	0.72	9.59	9.59	9.59	9.59	42.44	559.00	559.00	559.00	7.06	7.06
4	0.40	0.40	-8.75	0.40	9.15	9.15	9.15	9.15	39.41	525.61	525.61	525.61	3.65	3.65
5	0.48	0.48	-9.10	0.48	9.58	9.58	9.58	9.58	37.73	516.63	516.63	516.63	4.37	4.37
6	0.87	0.87	-10.58	0.87	11.75	11.75	11.75	11.75	42.91	485.84	485.84	485.84	7.35	7.35
7	-2.80	-2.80	-12.36	-2.80	9.56	9.56	9.56	9.56	52.41	476.02	476.02	476.02	-23.30	-23.30
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL	CHI	DIFFUSION FACTOR	CHI	DIFFUSION FACTOR	CHI	DIFFUSION FACTOR	CHI	DIFFUSION FACTOR	CHI	DIFFUSION FACTOR
1	0.635	0.635	0.635	0.635	0.284	0.512	0.284	0.512	0.284	0.512	0.284	0.512	0.284	0.512
2	0.657	0.657	0.657	0.657	0.301	0.456	0.301	0.456	0.301	0.456	0.301	0.456	0.301	0.456
3	0.655	0.655	0.655	0.655	0.482	0.482	0.482	0.482	0.482	0.482	0.482	0.482	0.482	0.482
4	0.636	0.636	0.636	0.636	0.471	0.471	0.471	0.471	0.471	0.471	0.471	0.471	0.471	0.471
5	0.653	0.653	0.653	0.653	0.471	0.471	0.471	0.471	0.471	0.471	0.471	0.471	0.471	0.471
6	0.636	0.636	0.636	0.636	0.498	0.498	0.498	0.498	0.498	0.498	0.498	0.498	0.498	0.498
7	0.670	0.670	0.670	0.670	0.566	0.566	0.566	0.566	0.566	0.566	0.566	0.566	0.566	0.566
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	AXIAL VEL	CHI	DIFFUSION FACTOR	CHI	DIFFUSION FACTOR	CHI	DIFFUSION FACTOR	CHI	DIFFUSION FACTOR	CHI	DIFFUSION FACTOR
1	0.465	0.465	0.465	0.465	0.265	0.6475	0.265	0.6475	0.265	0.6475	0.265	0.6475	0.265	0.6475
2	0.493	0.493	0.493	0.493	0.279	0.7302	0.279	0.7302	0.279	0.7302	0.279	0.7302	0.279	0.7302
3	0.467	0.467	0.467	0.467	0.339	0.7739	0.339	0.7739	0.339	0.7739	0.339	0.7739	0.339	0.7739
4	0.443	0.443	0.443	0.443	0.398	0.8559	0.398	0.8559	0.398	0.8559	0.398	0.8559	0.398	0.8559
5	0.441	0.441	0.441	0.441	0.423	0.8616	0.423	0.8616	0.423	0.8616	0.423	0.8616	0.423	0.8616
6	0.415	0.415	0.415	0.415	0.463	0.8832	0.463	0.8832	0.463	0.8832	0.463	0.8832	0.463	0.8832
7	0.407	0.407	0.407	0.407	0.405	0.7129	0.405	0.7129	0.405	0.7129	0.405	0.7129	0.405	0.7129
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	SOLIDITY	LOSS PARAM	YOT PRESS EFFICIENCY	ADB PRESS EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAY PRESS RISE COEFF	STATOR DATA	STATOR DATA
1	5.0000	0.957	0.957	0.955	1.000	0.145	1.5230	0.047	0.6475	0.6475	0.265	0.265	1.6463	0.9813
2	10.0000	0.967	0.967	0.981	1.000	0.121	1.5480	0.039	0.7302	0.7302	0.279	0.279	0.8083	0.9634
3	30.0000	0.969	0.969	0.995	1.000	0.075	1.6310	0.023	0.7739	0.7739	0.339	0.339	1.6463	0.9813
4	50.0000	0.980	0.980	0.994	1.000	0.026	1.7420	0.008	0.8559	0.8559	0.398	0.398	0.8083	0.9634
5	70.0000	0.979	0.979	0.996	1.000	0.040	1.8800	0.011	0.8616	0.8616	0.423	0.423	1.6463	0.9813
6	90.0000	0.982	0.982	0.999	1.000	0.067	2.0510	0.021	0.8832	0.8832	0.463	0.463	0.8083	0.9634
7	95.0000	0.947	0.947	0.971	1.000	0.108	2.0980	0.026	0.7129	0.7129	0.405	0.405	1.6463	0.9813
OVERALL PERFORMANCE SUMMARY														
STAGE DATA STATOR DATA STATOR DATA														
FIXED INST. FIXED INST. TRAV. INST.														
Total Pressure Ratio = 1.6463 0.9813 0.9717														
Polytropic Efficiency = 0.8083 0.9634 0.9389														
Percent Design Speed = 100.0 Discharge Valve Setting = 8.2														
Cor. Nozzle Weight Flow = 207.1														
LE Check Flow/Noz. Flow = 0.9115 TE Check Flow/Noz. Flow = 0.8953														
Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350														

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS										DATE		
		POINT NUMBER 29		READING NUMBER 29		DATE		9/ 1/1970						
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANGLE	HN CHBR LN	INLET SURF ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET ABS VELOCITY	INLET REL VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL
1	66.24	0.	60.60	5.64	2.94	602.01	148.73	148.73	597.37	597.37	0.	0.	3357.21	3357.21
2	64.84	0.	59.61	5.23	2.20	625.55	146.33	146.33	623.30	623.30	0.	0.	3327.30	3327.30
3	56.95	0.	56.01	0.94	4.42	806.54	144.09	144.09	806.55	806.55	0.	0.	1197.87	1197.87
4	46.26	0.	52.56	-6.30	-12.14	1024.20	1479.05	1479.05	1024.22	1024.22	0.	0.	1067.06	1067.06
5	42.85	0.	49.71	-6.89	-13.65	1021.01	1383.84	1383.84	1006.89	1006.89	0.	0.	934.10	934.10
6	45.11	0.	47.11	-2.00	-9.66	816.16	1133.44	1133.44	783.59	783.59	0.	0.	786.49	786.49
7	47.26	0.	46.13	1.13	-6.77	721.16	1034.62	1034.62	685.41	685.41	0.	0.	741.86	741.86
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	56.91	32.40	54.80	2.11	9.33	735.20	1135.31	1135.31	619.02	619.02	392.77	392.77	950.10	950.10
2	56.21	31.29	54.42	1.79	8.63	733.19	1125.10	1125.10	625.02	625.02	379.90	379.90	954.13	954.13
3	52.91	32.07	50.68	2.23	3.14	724.09	1017.39	1017.39	613.47	613.47	384.33	384.33	811.47	811.47
4	50.91	28.73	43.79	7.12	-4.65	689.96	959.43	959.43	604.93	604.93	331.53	331.53	744.57	744.57
5	43.44	32.20	42.15	11.29	-0.58	717.68	835.79	835.79	605.77	605.77	381.50	381.50	573.61	573.61
6	27.91	35.88	14.29	13.62	17.20	831.33	763.76	763.76	666.62	666.62	482.22	482.22	353.19	353.19
7	23.94	41.26	8.00	15.94	23.32	822.04	680.16	680.16	640.02	640.02	535.28	535.28	270.86	270.86
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	AXIAL VEL RATIO	SOLIDITY	LOSS COEFFICIENT	LOSS PARAM	EFFICIENCY	AD8 EFFICIENCY	POLY EFFICIENCY	MOMEN RISE	MEAS T RISE	STAT RISE	PRESS COEFF	
1	157.21	0.554	1.367	1.036	0.115	0.024	0.8395	0.8395	0.8499	0.252	0.252	0.252	0.252	
2	152.50	0.578	1.357	1.003	0.062	0.013	0.9130	0.9130	0.9189	0.357	0.357	0.357	0.357	
3	1197.87	0.765	1.369	0.761	0.032	0.006	0.9526	0.9526	0.9559	0.439	0.439	0.439	0.439	
4	1167.06	1.000	1.444	0.592	0.163	0.030	0.6918	0.6918	0.7041	0.469	0.469	0.469	0.469	
5	934.10	1.000	1.355	0.602	0.151	0.029	0.7172	0.7172	0.7281	0.425	0.425	0.425	0.425	
6	786.49	0.773	1.073	0.851	0.190	0.038	0.7469	0.7469	0.7598	0.458	0.458	0.458	0.458	
7	741.86	0.674	0.968	0.890	0.234	0.046	0.7274	0.7274	0.7387					
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	PIAED TOT TEMP RATIO	TOT PRESS LOSS PARAM	EFFICIENCY	AD8 EFFICIENCY	POLY EFFICIENCY	MOMEN RISE	MEAS T RISE	STAT RISE	PRESS COEFF	
1	142.87	0.629	1.330	1.587	1.168	0.024	0.8395	0.8395	0.8499	0.252	0.252	0.252	0.252	
2	134.04	0.631	1.369	1.587	1.163	0.013	0.9130	0.9130	0.9189	0.357	0.357	0.357	0.357	
3	1195.80	0.628	1.508	1.588	1.148	0.006	0.9526	0.9526	0.9559	0.439	0.439	0.439	0.439	
4	1076.10	0.604	1.684	1.582	1.123	0.030	0.6918	0.6918	0.7041	0.469	0.469	0.469	0.469	
5	955.11	0.632	1.900	1.319	1.115	0.029	0.7172	0.7172	0.7281	0.425	0.425	0.425	0.425	
6	839.41	0.737	2.2170	1.367	1.125	0.038	0.7469	0.7469	0.7598	0.458	0.458	0.458	0.458	
7	806.12	0.723	2.3390	1.349	1.123	0.046	0.7274	0.7274	0.7387					
RADIAL POSITION	PERCENT IMPROVEMENT	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	PIAED TOT TEMP RATIO	TOT PRESS LOSS PARAM	EFFICIENCY	AD8 EFFICIENCY	POLY EFFICIENCY	MOMEN RISE	MEAS T RISE	STAT RISE	PRESS COEFF		
1	9.0000	1.598	1.587	1.168	0.024	0.8395	0.8395	0.8499	0.252	0.252	0.252	0.252		
2	19.0000	1.609	1.170	1.163	0.013	0.9130	0.9130	0.9189	0.357	0.357	0.357	0.357		
3	30.0000	1.533	1.155	1.148	0.006	0.9526	0.9526	0.9559	0.439	0.439	0.439	0.439		
4	50.0000	1.385	1.111	1.123	0.030	0.6918	0.6918	0.7041	0.469	0.469	0.469	0.469		
5	70.0000	1.330	1.114	1.115	0.029	0.7172	0.7172	0.7281	0.425	0.425	0.425	0.425		
6	90.0000	1.404	1.130	1.125	0.038	0.7469	0.7469	0.7598	0.458	0.458	0.458	0.458		
7	95.0000	1.414	1.145	1.123	0.046	0.7274	0.7274	0.7387						

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.3742 1.4116 1.4610
 0.6922 0.7536 0.8139
 0.7057 0.7653 0.8236
 Discharge Valve Setting= 30.0
 100.0
 216.0
 IE Check Flow/Noz.Flow = 0.9800
 Assumed IE Flow Coeff. = 0.9850
 TE Check Flow/Noz.Flow = 0.9056
 Assumed TE Flow Coeff. = 0.9500

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV															
BLADE ELEMENT PERFORMANCE RESULTS															
POINT NUMBER		29		HEADING NUMBER		29		DATE		9/ 1/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		32.23	39.47	-7.24	739.22	625.34	394.19	625.34	394.19	394.19	739.22	625.34	625.34	394.19	394.19
2		30.70	39.11	-8.41	746.80	642.14	381.28	642.14	381.28	381.28	746.80	642.14	642.14	381.28	381.28
3		30.13	39.01	-8.88	765.26	661.48	385.96	661.48	385.96	385.96	765.26	661.48	661.48	385.96	385.96
4		26.44	39.80	-15.36	759.05	660.17	328.23	660.17	328.23	328.23	759.05	660.17	660.17	328.23	328.23
5		29.53	40.86	-11.33	762.97	659.14	373.44	659.14	373.44	373.44	762.97	659.14	659.14	373.44	373.44
6		33.00	42.22	-9.22	863.63	716.07	464.94	716.07	464.94	464.94	863.63	716.07	716.07	464.94	464.94
7		38.50	42.76	-4.26	834.97	646.04	513.90	646.04	513.90	513.90	834.97	646.04	646.04	513.90	513.90
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		2.35	-11.13	13.48	29.88	636.37	26.11	636.37	26.11	26.11	636.37	26.11	636.37	26.11	26.11
2		3.66	-10.10	13.76	27.04	708.33	45.20	708.33	45.20	45.20	708.33	45.20	708.33	45.20	45.20
3		0.52	-8.87	9.59	29.62	700.06	6.29	700.06	6.29	6.29	700.06	6.29	700.06	6.29	6.29
4		-2.80	-8.75	5.95	29.24	661.34	-32.25	661.34	-32.25	-32.25	661.34	-32.25	661.34	-32.25	-32.25
5		-1.19	-9.10	7.91	30.72	684.46	-14.14	684.46	-14.14	-14.14	684.46	-14.14	684.46	-14.14	-14.14
6		1.43	-10.58	12.01	31.57	793.45	19.74	793.45	19.74	19.74	793.45	19.74	793.45	19.74	19.74
7		0.54	-12.56	12.90	37.96	774.05	7.33	774.05	7.33	7.33	774.05	7.33	774.05	7.33	7.33
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS EFFICIENCY	ADB EFFICIENCY	POLY PUMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	WILFUSION FACTOR	CHI			
1		0.629	1.018	1.018	0.189	0.062	0.1072	0.1072	0.1072	0.023	0.302	0.025			
2		0.643	1.101	1.101	0.075	0.024	0.1404	0.1404	0.1404	0.035	0.197	0.038			
3		0.667	1.028	1.028	0.064	0.020	0.14509	0.14509	0.14509	0.065	0.236	0.072			
4		0.651	1.000	1.000	0.093	0.027	0.1600	0.1600	0.1600	0.065	0.244	0.072			
5		0.675	1.036	1.036	0.125	0.033	0.1237	0.1237	0.1237	0.038	0.236	0.043			
6		0.769	1.104	1.104	0.102	0.025	0.0219	0.0219	0.0219	0.003	0.204	0.003			
7		0.736	1.194	1.194	0.118	0.028	0.0023	0.0023	0.0023	0.000	0.215	0.000			
RADIAL POSITION	PERCENT IMPRESSION	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	LOSS	TOT PRESS EFFICIENCY	ADB EFFICIENCY	POLY PUMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	PERFORMANCE PARAMETERS	STAGE INLET STATOR INLET STATOR INLET	FIXED INST. FIXED INST. TRAV. INST.	PERCENT DESIGN SPEED	DISCHARGE VALVE SETTING
1	7.0000	0.943	0.976	0.952	1.000	1.000	0.062	0.1072	0.1072	0.023	Total Pressure Ratio = 1.3742	0.9735	0.9621	100.0	30.0
2	11.0000	0.984	0.994	0.982	1.000	1.000	0.024	0.1404	0.1404	0.035	Polytropic Efficiency = 0.7057	0.9221	0.4140		
3	30.0000	0.973	0.998	0.977	1.000	1.000	0.020	0.14509	0.14509	0.065	Percent Design Speed = 100.0				
4	53.0000	0.963	1.002	0.977	1.000	1.000	0.027	0.1600	0.1600	0.065	Cor. Nozzle Weight Flow = 216.0				
5	70.0000	0.954	0.998	0.967	1.000	1.000	0.033	0.1237	0.1237	0.038	IE Check Flow/Noz.Flow = 0.9104				
6	90.0000	0.941	0.994	0.966	1.000	1.000	0.025	0.0219	0.0219	0.003	Assumed IE Flow Coeff. = 0.9550				
7	92.0000	0.955	0.981	0.964	1.000	1.000	0.028	0.0023	0.0023	0.000					

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV													
		BLADE ELEMENT PERFORMANCE RESULTS													
		POINT NUMBER 30										9/ 1/1970			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	67.17	0.	60.60	6.57	3.87	576.65	1476.40	572.23	0.	3359.13	1476.40	572.23	0.	3359.13	1476.40
2	65.83	0.	59.61	6.22	3.19	598.67	1457.78	596.57	0.	3329.18	1457.78	596.57	0.	3329.18	1457.78
3	57.51	0.	56.01	1.50	-2.96	763.88	1422.14	763.80	0.	1199.57	1422.14	763.80	0.	1199.57	1422.14
4	50.93	0.	52.56	-1.63	-7.47	869.95	1377.91	867.42	0.	1068.57	1377.91	867.42	0.	1068.57	1377.91
5	44.21	0.	49.71	-5.50	-12.29	975.13	1351.25	961.62	0.	935.42	1351.25	961.62	0.	935.42	1351.25
6	44.88	0.	47.11	-2.23	-9.89	824.11	1139.95	790.97	0.	787.60	1139.95	790.97	0.	787.60	1139.95
7	47.42	0.	46.13	1.29	-6.61	718.15	1033.27	682.64	0.	742.91	1033.27	682.64	0.	742.91	1033.27
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	56.50	46.51	54.80	1.70	10.66	763.18	950.99	524.21	552.69	792.08	524.21	552.69	792.08	524.21	552.69
2	55.23	44.34	54.42	0.81	10.59	762.20	955.47	544.22	531.81	784.09	544.22	531.81	784.09	544.22	531.81
3	52.51	41.90	50.68	1.63	5.21	734.53	893.82	546.43	490.32	707.17	546.43	490.32	707.17	546.43	490.32
4	50.20	39.54	43.79	6.41	0.73	689.86	831.20	531.97	439.07	638.56	531.97	439.07	638.56	531.97	439.07
5	42.97	38.77	32.15	10.82	1.24	708.74	755.00	551.48	442.84	513.62	551.48	442.84	513.62	551.48	442.84
6	31.02	43.17	14.29	16.73	13.85	731.37	641.52	543.42	509.75	326.85	543.42	509.75	326.85	543.42	509.75
7	23.33	49.21	0.00	15.33	24.09	784.61	563.42	507.60	588.31	218.95	507.60	588.31	218.95	507.60	588.31
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS P/AM	EFFICIENCY ADB	POLY ROMEN EFFICIENCY	RISE T	RISE STAT	LOSS COEFF	EFFICIENCY	POLY ROMEN EFFICIENCY	RISE T	RISE STAT
1	1549.77	0.629	0.784	1.3340	0.157	0.052	0.8339	0.8472	0.379	0.379	0.157	0.8339	0.8472	0.379	0.379
2	1315.90	0.636	0.797	1.3690	0.132	0.027	0.8622	0.8744	0.398	0.398	0.132	0.8622	0.8744	0.398	0.398
3	1197.49	0.625	0.760	1.5080	-0.001	-0.000	1.0007	1.0009	0.477	0.477	-0.001	1.0007	1.0009	0.477	0.477
4	1077.63	0.592	0.714	1.6840	0.147	0.028	0.7968	0.8084	0.594	0.594	0.147	0.7968	0.8084	0.594	0.594
5	956.46	0.616	0.656	1.9060	0.121	0.023	0.8224	0.8320	0.637	0.637	0.121	0.8224	0.8320	0.637	0.637
6	836.59	0.654	0.559	2.2170	0.147	0.029	0.8241	0.8332	0.602	0.602	0.147	0.8241	0.8332	0.602	0.602
7	507.26	0.682	0.489	2.3390	0.153	0.030	0.8414	0.8497	0.541	0.541	0.153	0.8414	0.8497	0.541	0.541
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	LOSS COEFFICIENT	TOT PRESS LOSS P/AM	EFFICIENCY ADB	POLY ROMEN EFFICIENCY	RISE T	RISE STAT	LOSS COEFF	EFFICIENCY	POLY ROMEN EFFICIENCY	RISE T	RISE STAT
1	5.0000	1.890	1.267	1.871	1.235	0.052	0.8339	0.8472	0.379	0.379	0.157	0.8339	0.8472	0.379	0.379
2	13.0000	1.891	1.246	1.904	1.234	0.027	0.8622	0.8744	0.398	0.398	0.132	0.8622	0.8744	0.398	0.398
3	30.0000	1.766	1.198	1.821	1.187	-0.000	1.0007	1.0009	0.477	0.477	-0.001	1.0007	1.0009	0.477	0.477
4	50.0000	1.564	1.151	1.515	1.158	0.028	0.7968	0.8084	0.594	0.594	0.028	0.7968	0.8084	0.594	0.594
5	70.0000	1.482	1.138	1.480	1.144	0.023	0.8224	0.8320	0.637	0.637	0.023	0.8224	0.8320	0.637	0.637
6	90.0000	1.475	1.144	1.464	1.140	0.029	0.8241	0.8332	0.602	0.602	0.029	0.8241	0.8332	0.602	0.602
7	95.0000	1.555	1.159	1.464	1.137	0.030	0.8414	0.8497	0.541	0.541	0.030	0.8414	0.8497	0.541	0.541
OVERALL PERFORMANCE SUMMARY															
STAGE DATA ROTOR DATA ROTOR DATA															
FIXED INST. FIXED INST. TRAV. INST.															
1.5830 1.6087 1.6549															
0.7652 0.8147 0.8498															
0.7987 0.8267 0.8601															
Discharge Valve Setting= 11.0															
100.0 Cor. Nozzle Weight Flow= 212.8															
LE Check Flow/Noz.Flow = 0.9782 TE Check Flow/Noz.Flow = 0.8879															
Assumed LE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500															

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 30		READING NUMBER 30		DATE 9/ 1/1970		
RADIAL POSITION		REF INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CHRP LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		46.35	43.75	39.47	6.88	766.60	529.11	529.11	554.68	554.68
2		39.95	37.99	39.01	0.94	771.89	557.51	557.51	533.74	533.74
3		36.05	34.48	40.86	-2.71	722.28	575.04	575.04	489.89	489.89
4		40.48	38.99	42.22	-4.81	740.67	595.57	595.57	434.70	434.70
5		46.61	44.82	42.76	-1.74	784.32	575.94	575.94	433.48	433.48
6					3.85	784.32	544.04	544.04	491.48	491.48
7									564.83	564.83
RADIAL POSITION		REF EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		2.13	4.88	11.13	13.26	44.22	578.52	578.52	21.52	21.52
2		1.21	1.21	10.10	14.96	38.87	623.47	623.47	53.21	53.21
3		-0.86	-0.86	8.75	10.08	38.73	589.41	589.41	12.49	12.49
4		-0.20	-0.20	9.10	7.89	37.95	544.10	544.10	-8.15	-8.15
5		1.48	1.48	10.58	8.90	36.25	562.50	562.50	11.99	11.99
6					12.06	38.99	563.77	563.77	14.55	14.55
7					10.84	48.13	539.53	539.53	-14.25	-14.25
RADIAL POSITION		ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY FLOWN RISE/ RISE COEFF	STAT PRESS RISE COEFF
1		0.632	1.093	1.118	1.007	0.133	0.044	0.950	0.5814	0.219
2		0.651	1.008	0.945	1.007	0.069	0.031	0.950	0.17602	0.235
3		0.622	0.945	0.976	1.007	0.026	0.007	0.950	0.17773	0.286
4		0.646	0.976	0.976	1.007	0.029	0.008	0.950	0.8484	0.341
5		0.667	0.976	0.976	1.007	0.068	0.017	0.950	0.8202	0.344
6		0.681	0.976	0.976	1.007	0.097	0.023	0.950	0.6787	0.322
7										
RADIAL POSITION		PERCENT DIFFUSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	PERFORMANCE PARAMETERS	OVERALL PERFORMANCE SUMMARY	
1		5.0000	0.953	0.968	0.968	1.000	0.100	Total Pressure Ratio =	STAGE DATA STATOR DATA	
2		10.0000	0.977	0.989	0.977	1.000	0.100	Polytropic Efficiency =	FIXED INST, FIXED INST, TRAV. INST.	
3		30.0000	0.974	0.992	0.983	1.000	0.100	Percent Design Speed =	1.5830	0.9840
4		50.0000	0.983	0.994	0.994	1.000	0.100	Cor. Nozzle Weight Flow =	0.7987	0.9661
5		70.0000	0.989	1.000	0.993	1.000	0.100	Discharge Valve Setting =	11.0	
6		90.0000	0.975	0.992	0.982	1.000	0.100	TE Check Flow/Noz.Flow =	0.8926	
7		95.0000	0.948	0.978	0.974	1.000	0.100	Assumed IE Flow Coeff. =	0.9550	

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER 32		READING NUMBER 32		DATE		9/ 1/1970			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	MN CHBR LN	INCLD ANG	INCLD SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AN VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	64.55	0.	60.60	7.95	5.25	5.25	548.70	1463.53	534.59	0.	1360.78
2	65.64	0.	59.61	7.03	4.00	4.00	576.93	1450.47	574.94	0.	1330.79
3	61.02	0.	56.01	5.01	0.55	0.55	665.18	1372.92	665.18	0.	1201.02
4	52.47	0.	52.56	-0.09	-5.93	-5.93	824.20	1350.53	821.61	0.	1065.86
5	46.32	0.	49.71	-3.39	-10.18	-10.18	906.88	1303.67	894.34	0.	936.55
6	45.61	0.	47.11	-0.50	-8.16	-8.16	776.63	1106.79	745.44	0.	788.56
7	43.58	0.	46.13	2.45	-5.45	-5.45	690.33	1014.80	656.17	0.	743.62
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AN VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	58.20	55.48	54.90	3.40	10.35	775.62	834.13	439.00	638.22	708.18	
2	54.25	47.34	54.42	-0.17	12.38	802.87	845.34	493.34	632.18	685.31	
3	51.55	44.52	50.58	0.87	9.47	754.66	822.44	511.50	554.69	644.05	
4	45.92	43.79	43.79	5.13	3.55	710.36	770.72	506.40	498.04	585.90	
5	42.51	42.54	32.15	10.36	3.81	709.86	709.59	522.08	479.01	478.61	
6	33.93	48.25	14.29	19.64	12.68	706.46	569.09	467.12	523.40	314.21	
7	22.74	55.16	8.00	14.74	25.85	788.08	481.39	435.52	625.72	182.52	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	COEFFICIENT LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	POLY FUMEN RISE/ REAS T RISE	STAT PRESS RISE	
1	1360.78	0.490	1.331	0.821	1.3340	0.255	0.046	0.7828	0.8024	0.434	
2	1330.79	0.528	1.357	0.858	1.3690	0.211	0.045	0.8061	0.8242	0.450	
3	1291.02	0.618	1.276	0.769	1.5080	0.027	0.006	0.9720	0.9742	0.514	
4	1259.86	0.776	1.272	0.616	1.6840	0.129	0.025	0.8449	0.8552	0.573	
5	1254.55	0.868	1.248	0.584	1.9060	0.078	0.015	0.8985	0.9047	0.633	
6	788.56	0.730	1.040	0.627	2.2170	0.124	0.023	0.8674	0.8751	0.699	
7	743.82	0.642	0.943	0.664	2.3390	0.143	0.028	0.8684	0.8764	0.719	
RADIAL POSITION	PERCENT IMMERGION	TRAV TOT PRESS RATIO	EXIT REL MACH NO	FIXED TOI PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	POLY FUMEN RISE/ REAS T RISE	STAT PRESS RISE	
1	51.0000	2.015	1.303	2.006	1.281	0.255	0.046	0.7828	0.8024	0.434	
2	10.0000	2.039	1.287	2.031	1.278	0.211	0.045	0.8061	0.8242	0.450	
3	30.0000	1.893	1.222	1.930	1.213	0.027	0.006	0.9720	0.9742	0.514	
4	50.0000	1.684	1.168	1.635	1.179	0.129	0.025	0.8449	0.8552	0.573	
5	70.0000	1.579	1.149	1.576	1.155	0.078	0.015	0.8985	0.9047	0.633	
6	90.0000	1.522	1.152	1.528	1.149	0.124	0.023	0.8674	0.8751	0.699	
7	95.0000	1.635	1.171	1.535	1.150	0.143	0.028	0.8684	0.8764	0.719	
OVERALL PERFORMANCE SUMMARY											
STAGE DATA ROTOR DATA ROTOR DATA											
FIXED INST. FIXED INST. TRAV. INST.											
PERFORMANCE PARAMETERS											
Total Pressure Ratio = 1.6847 1.7224 1.7631											
Adiabatic Efficiency = 0.7859 0.8219 0.8683											
Polytropic Efficiency = 0.8010 0.8350 0.8784											
Percent Design Speed = 100.1 Discharge Valve Setting= 7.0											
Cor. Nozzle Weight Flow= 203.5											
IE Check Flow/Noz.Flow = 0.9980 TE Check Flow/Noz.Flow = 0.8979											
Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500											

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS									
		DATE 9/ 1/1970									
		POINT NUMBER 32									
		HEADING NUMBER 32									
		DATE 9/ 1/1970									
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN	INCID ANG LN	INCID ANG SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AA VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		55.34	39.47	15.87	12.38	810.82	778.77	442.91	640.53		
2		51.49	39.11	12.38	778.19	778.19	810.82	504.84	634.48		
3		45.45	39.01	6.44	757.04	757.04	810.82	545.74	554.36		
4		42.38	39.80	2.24	735.87	735.87	810.82	546.13	493.08		
5		39.83	40.86	-1.05	710.94	710.94	810.82	562.13	488.89		
6		45.69	42.22	3.47	759.95	759.95	810.82	492.74	504.64		
7		52.75	42.76	9.99				456.87	600.75		
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AA VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1		0.94	11.13	12.07	54.40	579.47	579.47	579.39	9.48		
2		5.72	10.10	15.82	45.77	602.07	602.07	559.03	59.99		
3		2.40	8.87	11.27	43.05	554.76	554.76	554.02	23.20		
4		1.51	8.75	10.06	40.77	518.05	518.05	517.33	11.82		
5		0.64	9.10	9.74	39.19	492.87	492.87	491.79	5.51		
6		0.53	10.58	11.11	45.16	443.20	443.20	441.84	4.07		
7		-2.58	12.56	9.78	55.33	432.41	432.41	430.59	-19.39		
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS	ADB EFFICIENCY	POLY EFFICIENCY	MOMEN T RISE	STAT PRESS
1		0.631	1.308	1.3230	0.149	0.049	0.6754	0.6754	0.6754	0.286	
2		0.665	1.187	1.5440	0.147	0.047	0.6754	0.6754	0.6754	0.286	
3		0.698	1.015	1.7420	0.080	0.027	0.6754	0.6754	0.6754	0.286	
4		0.651	0.947	1.8800	0.034	0.010	0.6754	0.6754	0.6754	0.286	
5		0.637	0.875	2.0510	0.060	0.016	0.6754	0.6754	0.6754	0.286	
6		0.614	0.897	2.0980	0.098	0.024	0.6754	0.6754	0.6754	0.286	
7		0.654	0.942	2.0980	0.107	0.025	0.6754	0.6754	0.6754	0.286	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOI PRESS RATIO	FIXED TOI TEMP RATIO	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA	STATOR DATA	STATOR DATA
1		0.469	0.968	0.962	1.000	0.968	1.000	1.6847	0.9781	0.9711	
2		0.489	0.983	0.962	1.000	0.983	1.000	0.8010	0.9593	0.9343	
3		0.461	0.993	0.978	1.000	0.993	1.000	100.1	Discharge Valve Setting=7.0		
4		0.436	0.996	0.978	1.000	0.996	1.000	Cor. Nozzle Weight Flow= 203.5			
5		0.418	0.998	0.980	1.000	0.998	1.000	IE Check Flow/Noz.Flow = 0.9026	TE Check Flow/Noz.Flow = 0.9082		
6		0.376	0.992	0.978	1.000	0.992	1.000	Assumed IE Flow Coeff. = 0.9550	Assumed TE Flow Coeff. = 0.9350		
7		0.366	0.978	0.978	1.000	0.978	1.000				
OVERALL PERFORMANCE SUMMARY											

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW		NASA TASK IV																	
BLADE ELEMENT PERFORMANCE RESULTS		DATE																	
POINT NUMBER	23	READING NUMBER	279																
8/25/1970																			
RADIAL POSITION	1	REL INLET FLOW ANG	66.92	ABS INLET FLOW ANG	-0.23	CMBR LN LE ANGLE	60.60	INCID ANG	6.32	INLET ABS VELOCITY	584.121	INLET REL VELOCITY	1488.52	INLET AX VELOCITY	579.73	INLET ABS TANG VEL	-2.29	INLET REL TANG VEL	1360.38
	2		65.28		-0.14		59.61		5.67		614.121		1464.71		802.00		-1.54		1329.71
	3		55.42		1.89		56.01		-0.39		802.46		1420.29		802.00		26.49		1172.16
	4		45.23		2.06		52.56		57.33		1026.37		1454.31		1022.76		36.76		1030.99
	5		42.25		1.04		49.71		-13.17		1023.126		1373.46		1008.91		18.37		916.33
	6		44.36		1.10		47.11		-14.25		822.154		1127.90		789.35		15.11		771.89
	7		45.73		1.29		46.13		-8.30		745.15		1040.52		708.11		15.92		726.43
RADIAL POSITION	1	REL EXIT FLOW ANG	57.51	ABS EXIT FLOW ANG	32.87	CMBR LN LE ANGLE	54.80	REL DEV ANG	2.71	INLET ABS VELOCITY	723.81	EXIT REL VELOCITY	1129.88	EXIT AX VELOCITY	606.20	EXIT ABS TANG VEL	391.79	EXIT REL TANG VEL	951.96
	2		57.27		30.36		54.42		2.85		713.29		1136.61		613.99		359.67		955.22
	3		52.82		31.35		50.68		2.14		727.06		1027.29		620.73		378.20		818.38
	4		49.70		29.46		48.79		5.91		709.128		954.66		617.42		348.82		727.59
	5		42.55		31.62		35.15		10.40		733.464		847.45		623.14		383.72		572.00
	6		27.09		35.91		14.29		17.77		843.97		769.137		674.53		489.96		346.00
	7		22.93		41.82		8.00		14.93		831.84		677.56		612.21		547.67		258.98
RADIAL POSITION	1	ROTOR SPD AT INLET	1358.09	INLET ABS MACH NO	0.936	INLET REL MACH NO	1.359	AXIAL VEL RATIO	1.046	LOSS COEFFICIENT	0.131	TOT PRESS LOSS PARAM	0.024	EFFICIENCY	0.8281	POLY MOMEN RISE/ RISE COEFF	0.336	DIFFUSION FACTOR	0.349
	2		1326.17		0.957		1.352		1.003		0.033	0.024	0.9057		0.9117		0.314		0.367
	3		1194.65		0.759		1.344		0.774		0.007	0.007	0.9455		0.9489		0.359		0.464
	4		1067.75		1.001		1.418		0.604		0.034	0.034	0.6789		0.6918		0.488		0.258
	5		934.71		1.000		1.342		0.618		0.031	0.031	0.7028		0.7140		0.453		0.150
	6		787.00		0.777		1.066		0.857		0.040	0.040	0.7393		0.7505		0.415		0.439
	7		742.35		0.697		0.974		0.865		0.043	0.043	0.7455		0.7565		0.463		0.397
RADIAL POSITION	1	ROTOR SPD AT EXIT	1343.74	EXIT ABS MACH NO	0.964	EXIT REL MACH NO	0.964	SOLIDITY RATIO	1.3340	LOSS COEFFICIENT	0.131	TOT PRESS LOSS PARAM	0.024	EFFICIENCY	0.8281	POLY MOMEN RISE/ RISE COEFF	0.336	DIFFUSION FACTOR	0.349
	2		1314.89		0.616		0.982		1.3690		0.065	0.007	0.9455		0.9489		0.359		0.464
	3		1196.58		0.630		0.890		1.5090		0.037	0.007	0.9455		0.9489		0.488		0.258
	4		1076.81		0.620		0.835		1.6840		0.177	0.034	0.6789		0.6918		0.453		0.150
	5		955.73		0.645		0.745		1.9060		0.140	0.031	0.7028		0.7140		0.415		0.439
	6		835.94		0.747		0.681		2.2170		0.200	0.040	0.7393		0.7505		0.415		0.439
	7		806.45		0.731		0.595		2.3390		0.231	0.043	0.7455		0.7565		0.463		0.397
RADIAL POSITION	1	PERCENT UNDEVELOPMENT	5.0000	TRAV TOT PRESS RATIO	1.179	TRAV TOT PRESS RATIO	1.179	FIXED TOT PRESS RATIO	1.558	LOSS COEFFICIENT	1.133	TOT PRESS LOSS PARAM	0.024	EFFICIENCY	0.8281	POLY MOMEN RISE/ RISE COEFF	0.336	DIFFUSION FACTOR	0.349
	2		10.0000		1.593		1.155		1.586		1.156		0.9455		0.9489		0.359		0.464
	3		30.0000		1.595		1.155		1.578		1.147		0.9455		0.9489		0.488		0.258
	4		50.0000		1.404		1.117		1.338		1.128		0.9455		0.9489		0.453		0.150
	5		70.0000		1.345		1.116		1.313		1.115		0.9455		0.9489		0.415		0.439
	6		90.0000		1.417		1.133		1.364		1.126		0.9455		0.9489		0.415		0.439
	7		95.0000		1.406		1.145		1.366		1.123		0.9455		0.9489		0.463		0.397

OVERALL PERFORMANCE SUMMARY

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.
1.3678	1.4038	1.4632
0.6853	0.7449	0.8290
0.6989	0.7568	0.8379
Percent Design Speed = 100.0	Discharge Valve Setting = 30.0	
Cor. Nozzle Weight Flow = 214.2		
LE Check Flow/Noz.Flow = 0.9862	TE Check Flow/Noz.Flow = 0.9208	
Assumed LE Flow Coeff. = 0.9850	Assumed TE Flow Coeff. = 0.9500	

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

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		STATOR BLADE ROW - NASA TASK IV											
		BLADE ELEMENT PERFORMANCE RESULTS						POINT NUMBER 23 READING NUMBER 279 DATE 8/25/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL	
1		32.71	39.47	-6.76		727.71	812.33	630.52	393.20	360.98			
2		29.79	39.11	-9.32		726.56	630.52	630.52	360.98	360.98			
3		29.43	39.01	-9.58		769.49	669.86	669.86	377.84	377.84			
4		27.10	39.80	-12.70		759.98	674.90	674.90	345.35	345.35			
5		28.93	40.56	-11.63		781.55	679.66	679.66	375.61	375.61			
6		33.00	42.52	-9.52		877.45	727.52	727.52	472.40	472.40			
7		39.04	42.76	-3.72		844.28	648.42	648.42	525.81	525.81			
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1		2.21	-11.13	13.94	30.50	620.31	619.84	619.84	23.93	23.93			
2		2.75	-10.10	12.85	27.05	683.48	682.66	682.66	32.73	32.73			
3		1.82	-8.97	10.69	27.61	700.60	699.96	699.96	22.19	22.19			
4		0.20	-8.75	8.98	26.90	675.61	674.85	674.85	2.40	2.40			
5		-1.30	-9.10	7.80	30.23	684.61	682.97	682.97	-15.51	-15.51			
6		1.27	-10.58	11.85	31.72	790.69	788.05	788.05	17.54	17.54			
7		0.40	-12.36	12.76	38.63	772.20	769.70	769.70	5.44	5.44			
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS	TOT PRESS PARAM LOSS	ADB EFFICIENCY	POLY MOMEN RISE/ RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CHI	
1		0.621	1.012	1.012	1.5230	0.172	0.056	0.1338	0.1338	0.031	0.314	0.034	
2		0.629	1.083	1.083	1.5440	0.068	0.1022	0.4535	0.4535	0.205	0.205	0.051	
3		0.670	1.045	1.045	1.6310	0.055	0.1017	0.4344	0.4344	0.231	0.231	0.072	
4		0.668	1.000	1.000	1.7420	0.086	0.1025	0.3119	0.3119	0.240	0.240	0.064	
5		0.691	1.005	1.005	1.8800	0.123	0.1033	0.2068	0.2068	0.256	0.256	0.046	
6		0.780	1.083	1.083	2.0510	0.104	0.1025	0.0156	0.0156	0.223	0.223	0.003	
7		0.743	1.187	1.187	2.0980	0.118	0.1028	0.0881	0.0881	0.229	0.229	-0.013	
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOY PRESS RATIO	FIXED TOY TEMP RATIO	LOSS	TOT PRESS PARAM LOSS	ADB EFFICIENCY	POLY MOMEN RISE/ RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CHI	
1		0.530	0.981	0.981	1.960	0.1000	0.056	0.1338	0.1338	0.031	0.314	0.034	
2		0.589	0.989	0.989	1.984	0.068	0.1022	0.4535	0.4535	0.205	0.205	0.051	
3		0.607	0.995	0.995	2.085	0.055	0.1017	0.4344	0.4344	0.231	0.231	0.072	
4		0.589	0.998	0.998	2.100	0.086	0.1025	0.3119	0.3119	0.240	0.240	0.064	
5		0.601	0.992	0.992	2.100	0.123	0.1033	0.2068	0.2068	0.256	0.256	0.046	
6		0.699	0.987	0.987	2.066	0.104	0.1025	0.0156	0.0156	0.223	0.223	0.003	
7		0.682	0.978	0.978	2.063	0.118	0.1028	0.0881	0.0881	0.229	0.229	-0.013	
RADIAL POSITION	PERCENT LIMB FOLLOW	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOY PRESS RATIO	FIXED TOY TEMP RATIO	LOSS	TOT PRESS PARAM LOSS	ADB EFFICIENCY	POLY MOMEN RISE/ RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CHI	
1	5.0000	0.942	0.981	0.981	1.960	0.1000	0.056	0.1338	0.1338	0.031	0.314	0.034	
2	10.0000	0.983	0.989	0.989	1.984	0.068	0.1022	0.4535	0.4535	0.205	0.205	0.051	
3	30.0000	0.971	0.995	0.995	2.085	0.055	0.1017	0.4344	0.4344	0.231	0.231	0.072	
4	50.0000	0.957	0.998	0.998	2.100	0.086	0.1025	0.3119	0.3119	0.240	0.240	0.064	
5	70.0000	0.942	0.992	0.992	2.100	0.123	0.1033	0.2068	0.2068	0.256	0.256	0.046	
6	90.0000	0.929	0.987	0.987	2.066	0.104	0.1025	0.0156	0.0156	0.223	0.223	0.003	
7	95.0000	0.941	0.978	0.978	2.063	0.118	0.1028	0.0881	0.0881	0.229	0.229	-0.013	

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA -
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.3678 0.9744 0.9529
 Polytropic Efficiency = 0.6989 0.9235 0.4365
 Percent Design Speed = 100.0 Discharge Valve Setting = 30.0
 Cor. Nozzle Weight Flow = 214.2
 LE Check Flow/Noz.Flow = 0.9256 TE Check Flow/Noz.Flow = 0.8877
 Assumed LE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

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		ROTOR BLADE MON • NASA TASK IV															
		BLADE ELEMENT PERFORMANCE RESULTS						ROTOR DATA									
		POINT NUMBER 24		READING NUMBER 280		DATE 8/25/1970											
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET AX TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT AX TANG VEL
1	69.71	0.15	60.50	9.11	6.41	504.99	1446.71	201.12	1.33	1355.71	1.33	504.99	1446.71	201.12	1.33	1355.71	1.33
2	68.26	0.29	59.61	8.65	5.62	530.11	1426.62	201.12	2.66	1324.48	2.66	530.11	1426.62	201.12	2.66	1324.48	2.66
3	60.49	0.09	56.01	4.48	0.02	677.29	1374.99	677.27	1.10	1196.61	1.10	677.29	1374.99	677.27	1.10	1196.61	1.10
4	50.17	1.57	52.56	2.39	81.23	872.95	1359.96	870.11	23.84	1043.08	23.84	872.95	1359.96	870.11	23.84	1043.08	23.84
5	45.26	1.22	49.71	4.48	11.24	915.35	1286.75	906.41	19.25	914.73	19.25	915.35	1286.75	906.41	19.25	914.73	19.25
6	46.83	0.61	47.11	4.48	20.28	761.03	1088.76	730.40	17.75	778.64	17.75	761.03	1088.76	730.40	17.75	778.64	17.75
7	47.71	1.24	46.13	1.58	6.132	696.134	1006.86	661.74	14.38	727.139	14.38	696.134	1006.86	661.74	14.38	727.139	14.38
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT AX TANG VEL	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/RISE COEFF	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CH1
1	59.62	59.46	54.80	4.82	10.10	777.83	783.47	394.85	669.24	673.46	669.24	0.046	0.7716	0.7918	0.418	0.632	0.527
2	56.26	53.55	54.42	1.84	12.00	776.58	830.55	460.89	623.93	689.14	623.93	0.048	0.7840	0.8035	0.432	0.576	0.538
3	52.09	45.82	50.68	1.41	8.40	741.38	841.38	316.89	531.90	663.75	531.90	0.008	0.9588	0.9623	0.505	0.514	0.592
4	48.39	43.58	43.79	4.60	1.78	715.09	779.97	517.93	492.91	583.06	492.91	0.027	0.8300	0.8410	0.592	0.529	0.661
5	41.39	41.45	32.15	9.24	3.87	723.47	722.87	541.25	477.95	477.104	477.95	0.015	0.8986	0.9048	0.640	0.536	0.687
6	33.01	47.17	14.29	18.72	13.82	716.04	582.74	483.28	521.28	314.102	521.28	0.022	0.8774	0.8845	0.680	0.574	0.660
7	23.20	53.69	8.00	15.20	24.50	766.76	499.50	450.44	612.94	193.08	612.94	0.020	0.9086	0.9141	0.752	0.637	0.689
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	LOSS COEFFICIENT	FIXED TOT TEMP RATIO	FIXED TOT PRESS RATIO	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	PERCENT EFFICIENCY	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/RISE COEFF	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CH1
1	1357.04	0.458	1.312	0.788	1.3340	0.244	1.271	1.944	1.299	1.944	5.0000	0.046	0.7716	0.7918	0.418	0.632	0.527
2	1327.13	0.483	1.299	0.872	1.3690	0.235	1.272	1.909	1.273	1.909	10.0000	0.048	0.7840	0.8035	0.432	0.576	0.538
3	1197.72	0.631	1.281	0.763	1.5080	0.039	1.214	1.899	1.214	1.899	30.0000	0.008	0.9588	0.9623	0.505	0.514	0.592
4	1066.92	0.829	1.252	0.595	1.6840	0.138	1.166	1.613	1.166	1.613	50.0000	0.027	0.8300	0.8410	0.592	0.529	0.661
5	933.98	0.883	1.246	0.597	1.9050	0.077	1.148	1.561	1.148	1.561	70.0000	0.015	0.8986	0.9048	0.640	0.536	0.687
6	786.39	0.715	1.023	0.662	2.2170	0.115	1.151	1.511	1.151	1.511	90.0000	0.022	0.8774	0.8845	0.680	0.574	0.660
7	741.77	0.649	0.938	0.681	2.3390	0.099	1.146	1.523	1.146	1.523	95.0000	0.020	0.9086	0.9141	0.752	0.637	0.689

OVERALL PERFORMANCE SUMMARY

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.
Total Pressure Ratio =	1.6581	1.6090
Adiabatic Efficiency =	0.7829	0.8185
Polytropic Efficiency =	0.7978	0.8315
Percent Design Speed =	99.9	Discharge Valve Settings: 7.0
Cor. Nozzle Weight Flow =	201.7	
LE Check Flow/Noz. Flow =	1.0083	TE Check Flow/Noz. Flow = 0.9031
Assumed LE Flow Coeff. =	0.9550	Assumed TE Flow Coeff. = 0.9500

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

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STATOR BLADE ROW - NASA TASK IV															
BLADE ELEMENT PERFORMANCE RESULTS															
POINT NUMBER 24 READING NUMBER 280 DATE 8/25/1970															
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
1		59.33	39.47	19.86		780.89	398.32		671.65						
2		53.03	39.11	13.92		783.81	471.40		626.20						
3		43.91	39.01	4.90		766.47	551.97		531.39						
4		41.11	39.80	1.31		743.47	559.16		488.01						
5		38.70	40.86	-2.16		752.06	583.92		467.85						
6		44.57	42.22	2.35		722.17	510.22		502.60						
7		51.22	42.76	8.46		760.42	472.75		588.48						
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN LE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	DIFFUSION FACTOR	POLY MOMEN RISE/ EFFICIENCY	STAY PRESS RISE COEFF		
1		-0.27	-11.13	10.86	59.60	554.11	554.09		-2.66		0.574	0.6187	0.271		
2		2.17	-10.10	12.27	50.86	584.05	583.60		22.07		0.504	0.7140	0.268		
3		1.43	-8.87	10.30	42.48	531.15	550.75		13.74		0.487	0.7796	0.350		
4		1.36	-8.75	10.11	39.75	530.12	529.38		12.56		0.469	0.8635	0.398		
5		0.36	-9.10	9.46	38.34	517.63	516.51		3.22		0.474	0.9029	0.427		
6		0.74	-10.58	11.32	43.83	478.03	476.51		6.17		0.503	0.7209	0.479		
7		*3.50	-12.16	9.06	54.92	467.78	465.51		=26.85		0.574		0.414		
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	AXIAL VEL	INLET REL MACH NO	LOSS COEFFICIENT	SOLIDITY	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	PERCENT UNDERCUT				
1		0.633	1.391	1.151	0.146	1.5230	0.965	1.000	0.633	0.951	5.0000				
2		0.644	1.238	0.998	0.151	1.5440	0.963	1.000	0.475	0.965	10.0000				
3		0.638	0.947	0.947	0.101	1.6310	0.987	1.000	0.458	0.969	30.0000				
4		0.654	0.885	0.885	0.032	1.7420	0.999	1.000	0.447	0.981	50.0000				
5		0.626	0.934	0.934	0.042	1.8800	0.999	1.000	0.441	0.979	70.0000				
6		0.657	0.985	0.985	0.096	2.0510	0.993	1.000	0.407	0.945	90.0000				
7			0.985	0.985	0.111	2.0980	0.983	1.000	0.397	0.930	95.0000				
OVERALL PERFORMANCE SUMMARY															
STAGE DATA STATOR DATA STATOR DATA -															
FIXED INST. FIXED INST. TRAV. INST.															
										1.6581	0.9789	0.9716			
										0.7978	0.9595	0.8681			
										Discharge Valve Setting=7.0					
										99.9	Cor. Nozzle Weight Flow= 201.7				
										0.9079	IE Check Flow/Noz.Flow = 0.9194				
										0.9550	Assumed IE Flow Coeff. = 0.9550				

082670 **TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)**

ROTOR BLADE ROW		NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS		8/25/1970					
POINT NUMBER		READING NUMBER		281		PATB					
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG LN	INCIP ANG SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		67.72	1.30	60.60	7.12	4.42	555.52	145.28	551.12	12.49	1345.14
2		66.08	0.81	59.61	6.47	3.44	577.23	1444.19	585.11	8.27	1319.44
3		57.19	2.83	56.01	1.18	-3.28	749.54	1381.61	748.61	37.03	1151.21
4		50.34	2.65	52.56	2.22	8.06	855.72	1336.95	852.35	35.41	1027.97
5		43.90	1.57	49.71	5.81	-12.60	957.07	1319.82	944.06	25.84	918.54
6		44.73	1.54	47.11	2.38	-10.04	806.02	1111.75	773.36	20.73	766.00
7		46.19	2.11	46.13	0.06	97.84	723.89	1018.39	687.65	25.34	716.76
RADIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN RE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		58.12	46.91	54.80	3.32	9.60	735.97	951.24	501.86	530.44	806.84
2		57.08	42.96	54.42	2.66	9.01	726.72	977.90	530.96	494.35	820.09
3		52.05	40.47	50.68	1.37	5.14	736.41	840.27	560.11	477.88	718.29
4		49.56	38.72	43.79	5.77	0.77	698.63	810.27	544.97	436.97	639.47
5		42.00	38.49	32.15	9.85	1.90	721.40	759.63	563.44	448.06	507.34
6		31.02	42.48	14.29	16.73	33.71	753.38	650.25	550.90	504.45	331.22
7		24.15	48.38	8.00	16.15	22.03	779.10	572.04	512.25	576.65	239.72
RADIAL POSITION		ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADD EFFICIENCY	POLY MOMEN RISE/ STAT PRESS RISE COEFF
1		1357.63	0.508	1.330	0.911	1.3340	0.142	0.028	0.8456	0.8581	0.382
2		1327.71	0.540	1.327	0.907	1.3690	0.139	0.028	0.8517	0.8640	0.395
3		1198.24	0.705	1.300	0.748	1.5080	0.004	0.001	0.9949	0.9953	0.490
4		1067.39	0.811	1.267	0.639	1.6840	0.155	0.030	0.7923	0.8040	0.538
5		934.38	0.926	1.276	0.597	1.9060	0.123	0.024	0.8222	0.8317	0.586
6		786.73	0.762	1.050	0.712	2.170	0.141	0.027	0.8354	0.8441	0.613
7		742.09	0.677	0.952	0.749	2.3390	0.124	0.024	0.8737	0.8805	0.667
RADIAL POSITION		PERCENT LEAKAGE	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	FIXED TOT TIME RATIO	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADD EFFICIENCY	POLY MOMEN RISE/ STAT PRESS RISE COEFF
1		5.0000	1.825	1.828	1.222	1.226	0.142	0.028	0.8456	0.8581	0.382
2		10.0000	1.839	1.850	1.226	1.226	0.139	0.028	0.8517	0.8640	0.395
3		30.0000	1.748	1.798	1.184	1.158	0.004	0.001	0.9949	0.9953	0.490
4		50.0000	1.563	1.512	1.149	1.142	0.155	0.030	0.7923	0.8040	0.538
5		70.0000	1.488	1.472	1.136	1.136	0.123	0.024	0.8222	0.8317	0.586
6		90.0000	1.473	1.463	1.136	1.136	0.141	0.027	0.8354	0.8441	0.613
7		95.0000	1.530	1.482	1.155	1.155	0.124	0.024	0.8737	0.8805	0.667

OVERALL PERFORMANCE SUMMARY

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.
Total Pressure Ratio =	1.5683	1.5917
Adiabatic Efficiency =	0.7891	0.8168
Polytropic Efficiency =	0.8030	0.8284
Percent Design Speed =	100.0	Discharge Valve Setting= 11.0
Cor. Nozzle Weight Flow =	212.1	

LE Check Flow/Noz.Flow = 0.9762
 Assumed LE Flow Coeff. = 0.9850
 TE Check Flow/Noz.Flow = 0.9006
 Assumed TE Flow Coeff. = 0.9500

082670 **TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)**

STATOR BLADE ROW = NASA TASK IV		BLADE ELEMENT PERFORMANCE RESULTS										8/25/1970			
POINT NUMBER 25		READING NUMBER 281										PATH			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	ABS INLET FLOW ANG	LE ANGLE	CMR LN	INCID ANG	HN	CMR LN	INCID ANG	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL TANG VEL
1	46.75	42.37	39.47	7.28	3.26	739.22	736.21	767.28	733.02	432.62	506.54	543.89	600.22	538.38	496.15
2	38.50	35.80	33.01	50.51	53.54	754.96	767.52	779.76	754.96	486.37	589.91	609.37	584.17	477.42	436.59
3	35.74	42.22	42.76	3.01	3.01	779.76	779.76	779.76	779.76	779.76	539.02	539.02	539.02	553.64	553.64
4	39.78	45.77	45.77	3.01	3.01	779.76	779.76	779.76	779.76	779.76	539.02	539.02	539.02	553.64	553.64
5	39.78	45.77	45.77	3.01	3.01	779.76	779.76	779.76	779.76	779.76	539.02	539.02	539.02	553.64	553.64
6	39.78	45.77	45.77	3.01	3.01	779.76	779.76	779.76	779.76	779.76	539.02	539.02	539.02	553.64	553.64
7	39.78	45.77	45.77	3.01	3.01	779.76	779.76	779.76	779.76	779.76	539.02	539.02	539.02	553.64	553.64
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	ABS EXIT FLOW ANG	DEV ANG T6	CMR LN	INCID ANG	HN	CMR LN	INCID ANG	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL TANG VEL
1	2.41	2.41	-11.13	13.54	13.54	44.34	551.69	597.70	586.11	43.08	551.20	551.20	551.20	23.17	43.08
2	4.13	2.10	-8.87	10.97	10.97	36.40	587.52	587.52	586.88	21.54	586.88	586.88	586.88	21.54	21.54
3	2.10	-1.28	-8.75	7.47	37.54	37.54	522.80	522.80	522.05	-8.22	522.05	522.05	522.05	-12.35	-12.35
4	-0.83	-0.83	-9.10	8.27	36.58	36.58	568.24	568.24	568.96	-8.22	568.96	568.96	568.96	-8.22	-8.22
5	0.15	0.15	-10.58	10.73	39.63	39.63	569.11	569.11	569.11	1.51	569.11	569.11	569.11	1.51	1.51
6	-2.68	-2.68	-12.36	9.68	48.44	48.44	546.146	546.146	546.146	48.44	546.146	546.146	546.146	-25.45	-25.45
7	-2.68	-2.68	-12.36	9.68	48.44	48.44	546.146	546.146	546.146	48.44	546.146	546.146	546.146	-25.45	-25.45
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	INLET REL MACH NO	EXIT REL MACH NO	EXIT ABS MACH NO	EXIT REL MACH NO	AXIAL VEL RATIO	EXIT ABS MACH NO	EXIT REL MACH NO	AXIAL VEL RATIO	EXIT ABS MACH NO	EXIT REL MACH NO	AXIAL VEL RATIO
1	0.613	0.613	0.613	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088	1.088
2	0.621	0.621	0.621	0.978	0.978	0.978	0.978	0.978	0.978	0.978	0.978	0.978	0.978	0.978	0.978
3	0.633	0.633	0.633	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936	0.936
4	0.660	0.660	0.660	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930	0.930
5	0.671	0.671	0.671	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971	0.971
6	0.679	0.679	0.679	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009
7	0.679	0.679	0.679	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009	1.009
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS COEFF					
1	0.456	0.456	0.456	1.5230	0.141	0.946	0.946	0.946	0.6153	0.243					
2	0.496	0.496	0.496	1.5440	0.093	0.930	0.930	0.930	0.7210	0.264					
3	0.496	0.496	0.496	1.6310	0.050	0.915	0.915	0.915	0.7762	0.294					
4	0.470	0.470	0.470	1.7420	0.026	0.908	0.908	0.908	0.8394	0.337					
5	0.497	0.497	0.497	1.8800	0.029	0.908	0.908	0.908	0.8599	0.347					
6	0.489	0.489	0.489	2.0510	0.071	0.917	0.917	0.917	0.8154	0.357					
7	0.469	0.469	0.469	2.0980	0.098	0.923	0.923	0.923	0.6930	0.319					
RADIAL POSITION	PERCENT INTERSECTION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO										
1	5.0000	0.958	0.958	1.000	1.000										
2	10.0000	0.984	0.984	1.000	1.000										
3	30.0000	0.973	0.987	1.000	1.000										
4	50.0000	0.981	0.994	1.000	1.000										
5	70.0000	0.982	0.993	1.000	1.000										
6	90.0000	0.975	0.981	1.000	1.000										
7	95.0000	0.952	0.973	1.000	1.000										

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.5683 0.9853 0.9757
 Polytropic Efficiency = 0.8020 0.9681 0.8942
 Percent Design Speed = 100.0 Discharge Valve Setting= 11.0
 Cor. Nozzle Weight Flow= 212.1
 IE Check Flow/Noz.Flow = 0.9053 TE Check Flow/Noz.Flow = 0.8762
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350

090270

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER 29 READING NUMBER 353 DATE 9/ 1/1970									
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG HN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET REL YANG VEL
1	66.75	0.67	61.5	3.45	585.65	1474.12	581.12	6.75	1352.81	6.75	1352.81
2	65.34	0.13	5.73	2.70	611.92	1462.86	609.77	1.43	1328.18	1.43	1328.18
3	58.68	2.35	-5.13	-4.79	797.54	1413.31	796.89	32.71	1167.24	32.71	1167.24
4	45.42	2.36	-7.14	-12.98	1015.95	1444.15	1013.17	41.70	1027.21	41.70	1027.21
5	42.14	1.57	7.57	-14.36	1023.71	1371.75	1009.28	22.35	913.56	22.35	913.56
6	44.64	0.68	2.47	-10.13	821.54	1331.76	788.47	9.37	778.49	9.37	778.49
7	45.30	0.78	-0.83	-8.73	763.39	1058.50	725.56	9.84	733.31	9.84	733.31
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT REL YANG VEL
1	56.45	31.96	54.60	3.65	6.30	705.70	1142.57	597.19	372.58	972.62	972.62
2	57.57	29.99	54.42	3.15	7.77	708.25	1142.14	611.92	353.19	963.13	963.13
3	52.66	31.48	50.88	1.98	3.01	730.49	1027.88	622.83	381.35	816.52	816.52
4	50.02	28.92	43.79	6.23	-4.59	705.93	961.55	617.79	341.28	736.09	736.09
5	43.17	31.35	32.15	14.02	11.02	725.90	849.86	618.35	376.75	580.01	580.01
6	27.79	35.16	14.29	13.50	16.84	840.04	977.74	679.64	478.64	358.22	358.22
7	23.41	41.24	8.00	13.41	21.90	830.60	684.75	616.58	540.60	266.92	266.92
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	AXIAL VEL RATIO	SOLIDITY	COEFFICIENT	LOSS	VOY PRESS LOSS PARAM	EFFICIENCY	ADD EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF
1	1359.56	0.537	1.028	1.3340	0.117	0.023	0.8327	0.8428	0.258	0.317	0.359
2	1329.61	0.564	1.004	1.3690	0.043	0.808	0.9371	0.9411	0.272	0.306	0.374
3	1199.95	0.754	0.782	1.5080	0.036	0.807	0.9472	0.9506	0.371	0.355	0.466
4	1068.91	0.987	0.610	1.6840	0.189	0.836	0.6651	0.6785	0.466	0.449	0.552
5	935.72	1.000	0.813	1.9060	0.176	0.834	0.6786	0.6906	0.460	0.449	0.552
6	787.85	0.777	0.862	2.2470	0.203	0.640	0.7358	0.7472	0.432	0.409	0.434
7	743.15	0.746	0.850	2.3390	0.262	0.851	0.6899	0.7024	0.426	0.465	0.393
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA	ROTOR DATA		
1	1345.20	0.606	1.159	1.161	1.161	1.161	Total Pressure Ratio =	1.3668	1.4023		
2	1316.32	0.613	1.159	1.149	1.149	1.149	Adiabatic Efficiency =	0.6794	0.7379		
3	1197.87	0.632	1.157	1.1589	1.1589	1.1589	Polytropic Efficiency =	0.6932	0.7501		
4	1077.97	0.617	1.113	1.118	1.118	1.118	Cor. Nozzle Weight Flow =	100.1	Discharge Valve Setting = 30.0		
5	956.76	0.638	1.133	1.166	1.166	1.166	Cor. Nozzle Weight Flow =	214.7			
6	836.86	0.743	1.143	1.166	1.166	1.166	TE Check Flow/Noz.Flow =	0.9789	TE Check Flow/Noz.Flow = 0.9174		
7	807.52	0.730	1.132	1.166	1.166	1.166	Assumed LE Flow Coeff. =	0.9850	Assumed TE Flow Coeff. = 0.9500		

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.3668 1.4023 1.4621
 0.6794 0.7379 0.8451
 0.6932 0.7501 0.8532
 100.1 Discharge Valve Setting = 30.0
 214.7
 TE Check Flow/Noz.Flow = 0.9789
 Assumed LE Flow Coeff. = 0.9850
 Assumed TE Flow Coeff. = 0.9500

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW - NASA TASK IV									
		BLADE ELEMENT PERFORMANCE RESULTS					POINT NUMBER 29				
		READING NUMBER 353	DATE 9/1/1970								
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCD ANG MCH LN	INCD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	
1	31.79	39.47	-7.68	709.71	603.20	373.92	373.92	373.92	354.47	354.47	
2	29.43	39.11	-9.68	721.48	628.37	380.98	380.98	628.37	380.98	380.98	
3	26.54	39.01	-9.47	773.09	672.21	387.89	387.89	672.21	387.89	387.89	
4	26.58	39.80	-13.22	757.02	675.34	368.78	368.78	675.34	368.78	368.78	
5	28.69	40.86	-12.17	773.16	731.17	461.49	461.49	731.17	461.49	461.49	
6	32.26	42.22	-9.96	874.78	773.88	519.02	519.02	773.88	519.02	519.02	
7	38.47	42.76	-4.29	843.97	653.28			653.28			
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	YURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	
1	3.42	11.13	14.53	28.40	625.85	624.74	624.74	624.74	37.09	37.09	
2	0.06	10.16	10.16	29.37	685.77	685.73	685.73	685.73	0.74	0.74	
3	1.44	8.87	10.31	28.11	703.43	702.91	702.91	702.91	17.62	17.62	
4	0.21	6.75	8.54	26.79	674.85	674.10	674.10	674.10	-2.58	-2.58	
5	-1.16	-9.10	7.94	29.85	686.68	687.06	687.06	687.06	-13.95	-13.95	
6	1.25	-10.58	11.83	31.01	793.39	790.75	790.75	790.75	17.25	17.25	
7	0.47	12.35	12.83	30.00	773.06	770.55	770.55	770.55	6.34	6.34	
RADIAL POSITION	RATOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	LOSS COEFFICIENT	POLY MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CHI	
1	0.609	1.836	1.836	1.836	1.5230	0.178	0.058	0.1330	0.274	0.028	
2	0.625	1.891	1.891	1.891	1.5440	0.065	0.021	0.5459	0.268	0.052	
3	0.672	1.046	1.046	1.046	1.6310	0.056	0.017	0.4300	0.234	0.071	
4	0.666	0.998	0.998	0.998	1.7470	0.088	0.025	0.3193	0.237	0.065	
5	0.683	1.020	1.020	1.020	1.8800	0.121	0.032	0.2188	0.240	0.044	
6	0.778	1.081	1.081	1.081	2.0510	0.103	0.025	0.0350	0.214	0.016	
7	0.743	1.160	1.160	1.160	2.0980	0.117	0.028	0.0308	0.226	0.014	
RADIAL POSITION	PERCENTAGE ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	LOSS COEFFICIENT	ABR EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF	DISCHARGE VALVE SETTING	
1	5.0000	0.953	0.992	0.992	1.000	1.000	1.000	1.3668	0.9747	0.9599	
2	10.0000	0.968	0.999	0.999	1.000	1.000	1.000	0.6932	0.9241	0.3950	
3	30.0000	0.971	1.000	1.000	1.000	1.000	1.000				
4	50.0000	0.958	1.000	0.977	1.000	1.000	1.000				
5	70.0000	0.950	0.995	0.967	1.000	1.000	1.000				
6	90.0000	0.934	0.990	0.965	1.000	1.000	1.000				
7	95.0000	0.945	0.980	0.963	1.000	1.000	1.000				
OVERALL PERFORMANCE SUMMARY											
STAGE DATA STATOR DATA STATOR DATA											
FIXED INST. FIXED INST. TRAV. INST.											
Total Pressure Ratio = 1.3668 0.9747 0.9599											
Polytropic Efficiency = 0.6932 0.9241 0.3950											
Percent Design Speed = 100.1											
Cor. Nozzle Weight Flow = 214.7											
IE Check Flow/Noz.Flow = 0.9222 TE Check Flow/Noz.Flow = 0.8879											
Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350											

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV										
		BLADE ELEMENT PERFORMANCE RESULTS					POINT NUMBER 30					
		READING NUMBER 354					DATE 9/1/1970					
RADIAL POSITION	REL INLET FLOW AVG	ABS INLET FLOW AVG	CMR LN LE ANGLE	INCID ANG MN	INCID ANG LN	INLET ABS VELOCITY	INLET REL VELOCITY	EXIT ABS VELOCITY	EXIT REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	67.81	0.81	60.60	7.21	4.51	561.63	1476.92	953.17	953.17	557.27	-7.90	1365.99
2	65.84	-0.32	59.61	6.53	3.20	590.46	1460.20	981.73	981.73	587.55	-3.32	1331.48
3	57.65	1.92	56.01	1.65	-2.81	743.60	1389.12	907.75	907.75	743.17	24.94	1173.71
4	49.54	2.42	52.56	-3.02	-8.86	882.59	1356.27	844.42	844.42	879.07	37.11	1030.64
5	42.47	0.74	49.71	-7.24	-14.03	1023.22	1375.63	757.94	757.94	1006.98	12.95	921.76
6	45.56	0.45	47.11	-1.55	-9.21	798.09	1116.66	658.51	658.51	765.99	5.97	781.03
7	45.56	0.61	46.13	-0.57	-8.47	757.94	1059.52	786.95	786.95	720.40	7.70	734.65
RADIAL POSITION	REL EXIT FLOW AVG	ABS EXIT FLOW AVG	CMR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	LOSS PARAM	ADH EFFICIENCY	POLY EFFICIENCY	MEAS T RISE	STAY RISE COEFF
1	58.61	46.95	54.80	3.81	9.20	727.91	953.17	0.028	0.8398	0.8528	0.377	0.377
2	56.61	42.58	54.42	2.19	9.73	734.36	981.73	0.020	0.8886	0.8940	0.397	0.397
3	51.35	40.73	50.68	1.17	9.80	739.98	907.75	-0.600	1.0005	1.0005	0.485	0.485
4	49.47	38.41	43.79	5.68	0.07	700.34	844.42	0.831	0.7859	0.7981	0.554	0.554
5	42.44	38.57	32.15	10.29	0.03	715.54	757.94	0.026	0.8105	0.8105	0.597	0.597
6	31.30	41.82	14.29	17.01	14.26	752.97	658.51	0.135	0.8424	0.8507	0.596	0.596
7	23.84	47.90	8.00	15.84	25.73	786.95	586.24	0.163	0.8240	0.8331	0.594	0.594
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PARAM	ADH EFFICIENCY	POLY EFFICIENCY	MEAS T RISE	STAY RISE COEFF	DIFFUSION CH1	
1	1358.99	0.514	1.351	0.890	0.146	0.028	0.8398	0.8528	0.377	0.377	0.490	0.490
2	1328.17	0.552	1.344	0.904	0.102	0.020	0.8886	0.8940	0.397	0.397	0.452	0.452
3	1198.65	0.699	1.305	0.754	-0.000	-0.600	1.0005	1.0005	0.485	0.485	0.456	0.456
4	1067.75	0.839	1.289	0.624	0.159	0.831	0.7859	0.7981	0.554	0.554	0.465	0.465
5	934.70	1.000	1.347	0.554	0.132	0.026	0.8105	0.8105	0.597	0.597	0.532	0.532
6	787.00	0.753	1.053	0.726	0.135	0.126	0.8424	0.8507	0.596	0.596	0.512	0.512
7	742.15	0.711	0.990	0.730	0.163	0.132	0.8240	0.8331	0.634	0.634	0.565	0.565
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	LOSS PARAM	ADH EFFICIENCY	POLY EFFICIENCY	MEAS T RISE	STAY RISE COEFF	OVERALL PERFORMANCE SUMMARY	
1	1343.74	0.604	0.791	1.3340	0.146	0.028	0.8398	0.8528	0.377	0.377	STAGE DATA ROTOR DATA ROTOR DATA	
2	1314.89	0.620	0.828	1.3690	0.102	0.020	0.8886	0.8940	0.397	0.397	FIXED INST. FIXED INST. TRAV. INST.	
3	1176.58	0.631	0.775	1.5080	-0.000	-0.600	1.0005	1.0005	0.485	0.485	1.5716	1.5954
4	1074.81	0.602	0.726	1.6840	0.159	0.831	0.7859	0.7981	0.554	0.554	0.7885	0.8165
5	959.73	0.623	0.659	1.9060	0.132	0.026	0.8105	0.8105	0.597	0.597	0.8016	0.8282
6	839.96	0.655	0.573	2.2370	0.135	0.126	0.8424	0.8507	0.596	0.596	Discharge Valve Setting= 11.0	
7	806.64	0.685	0.510	2.3390	0.163	0.132	0.8240	0.8331	0.634	0.634	Cor. Nozzle Weight Flow= 212.1	
RADIAL POSITION	PERCENT IGE	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS						
1	5.0000	1.866	1.224	1.826	1.219	Total Pressure Ratio =						
2	10.0000	1.866	1.209	1.865	1.186	Adiabatic Efficiency =						
3	30.0000	1.765	1.194	1.818	1.160	Polytropic Efficiency =						
4	50.0000	1.576	1.150	1.514	1.145	Percent Design Speed =						
5	70.0000	1.487	1.138	1.468	1.137	Cor. Nozzle Weight Flow=						
6	90.0000	1.472	1.147	1.467	1.137	IE Check Flow/Noz.Flow =						
7	95.0000	1.517	1.155	1.453	1.137	Assumed IE Flow Coeff. =						

IE Check Flow/Noz.Flow = 0.9780
 Assumed IE Flow Coeff. = 0.9500

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV														
BLADE ELEMENT PERFORMANCE RESULTS														
POINT NUMBER 30 READING NUMBER 354 DATE 97 1/1970														
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	INLET CMR LN	INLET LE ANGLE	INLET INCID ANG	INLET MN CMR LN	INLET SUCT SURF	INLET INCID ANG	INLET SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	46.79	41.99	39.47	39.11	7.32	731.12	41.55	731.12	500.56	532.88	500.56	532.88	532.88	532.88
2	38.76	35.94	39.01	39.11	2.88	744.41	38.92	744.41	531.03	497.82	531.03	497.82	497.82	497.82
3	35.86	33.80	39.01	39.11	-6.25	770.79	38.72	770.79	600.81	482.32	600.81	482.32	482.32	482.32
4	35.83	33.80	39.01	39.11	-3.86	735.30	38.72	735.30	594.10	430.73	594.10	430.73	430.73	430.73
5	39.12	36.45	40.86	40.86	-5.03	748.45	36.31	748.45	603.45	435.77	603.45	435.77	435.77	435.77
6	42.22	39.12	42.22	42.22	-3.10	768.06	38.48	768.06	590.02	479.89	590.02	479.89	479.89	479.89
7	44.85	41.85	42.76	42.76	2.09	788.96	47.15	788.96	554.06	551.25	554.06	551.25	551.25	551.25
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	EXIT CMR LN	EXIT TE ANGLE	EXIT INCID ANG	EXIT MN CMR LN	EXIT SUCT SURF	EXIT INCID ANG	EXIT SURF	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	5.24	5.07	16.37	16.37	41.55	555.65	41.55	555.65	533.32	50.75	533.32	50.75	50.75	50.75
2	8.04	8.07	10.10	10.10	38.92	611.20	38.92	611.20	618.29	32.78	618.29	32.78	32.78	32.78
3	0.04	0.04	8.87	8.87	38.72	595.39	38.72	595.39	595.14	0.38	595.14	0.38	0.38	0.38
4	-1.30	-1.30	7.45	7.45	37.24	551.30	37.24	551.30	550.55	-12.48	550.55	-12.48	-12.48	-12.48
5	0.48	0.48	-9.10	-9.10	36.31	566.66	36.31	566.66	565.43	-4.72	565.43	-4.72	-4.72	-4.72
6	0.65	0.65	10.58	10.58	38.48	576.75	38.48	576.75	574.93	6.49	574.93	6.49	6.49	6.49
7	-2.50	-2.50	-12.36	-12.36	47.15	546.01	47.15	546.01	543.82	-21.84	543.82	-21.84	-21.84	-21.84
RADIAL POSITION	POTR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS	PABM LOSS	PRESS LOSS	EFFICIENCY	ADP EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAY PRESS RISE	DIFFUSION FACTOR	CHI
1	0.607	0.607	0.607	1.230	0.148	0.048	0.048	0.048	0.6613	0.6613	0.251	0.251	0.456	0.268
2	0.629	0.629	0.629	1.104	0.076	0.025	0.025	0.025	0.8516	0.8516	0.260	0.260	0.381	0.278
3	0.660	0.660	0.660	0.991	0.060	0.018	0.018	0.018	0.7861	0.7861	0.292	0.292	0.419	0.314
4	0.635	0.635	0.635	0.927	0.029	0.008	0.008	0.008	0.8261	0.8261	0.336	0.336	0.422	0.358
5	0.654	0.654	0.654	0.937	0.030	0.008	0.008	0.008	0.8670	0.8670	0.346	0.346	0.398	0.370
6	0.670	0.670	0.670	0.874	0.066	0.016	0.016	0.016	0.8448	0.8448	0.337	0.337	0.397	0.361
7	0.687	0.687	0.687	0.982	0.095	0.023	0.023	0.023	0.6719	0.6719	0.478	0.478	0.478	0.340
RADIAL POSITION	POTR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	TEMP RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	Total Pressure Ratio	Polytropic Efficiency	Percent Design Speed	Cor. Nozzle Weight Flow	STAGE DATA STATOR DATA STATOR INST. FIXED INST. FIXED INST. TRAV. INST.		
1	0.460	0.460	0.460	1.230	1.000	1.000	1.000	1.000	1.000	100.0	212.1	1.5716 0.9851 0.9773		
2	0.509	0.509	0.509	1.5440	0.967	0.967	1.000	1.000	1.000	100.0	212.1	0.8016 0.9679 0.8911		
3	0.502	0.502	0.502	1.6310	0.982	0.982	1.000	1.000	1.000	100.0	212.1	Discharge Valve Settings=11.0		
4	0.468	0.468	0.468	1.7420	0.997	0.997	1.000	1.000	1.000	100.0	212.1			
5	0.485	0.485	0.485	1.8800	0.996	0.996	1.000	1.000	1.000	100.0	212.1			
6	0.496	0.496	0.496	2.0510	0.983	0.983	1.000	1.000	1.000	100.0	212.1			
7	0.469	0.469	0.469	2.0980	0.989	0.989	1.000	1.000	1.000	100.0	212.1			
7	0.467	0.467	0.467	2.0980	0.947	0.947	1.000	1.000	1.000	100.0	212.1			
OVERALL PERFORMANCE SUMMARY														
STAGE DATA STATOR DATA STATOR INST. FIXED INST. FIXED INST. TRAV. INST.														
Total Pressure Ratio = 1.5716 0.9851 0.9773														
Polytropic Efficiency = 0.8016 0.9679 0.8911														
Percent Design Speed = 100.0														
Cor. Nozzle Weight Flow = 212.1														
IE Check Flow/Noz.Flow = 0.9095 TE Check Flow/Noz.Flow = 0.8835														
Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9350														

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TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV											
		BLADE ELEMENT PERFORMANCE RESULTS											
		POINT NUMBER 31										DATE 9/ 1/1970	
RADIAL POSITION	REL INLET FLW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID AN MN	INCID AN LN	SUCT SURF ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL		
1	67.69	-0.91	60.80	8.09	5.39	9.73	537.55	1468.99	533.36	-8.49	1367.13		
2	27.09	-0.62	59.61	4.44	566.33	4.44	1449.96	1449.96	564.31	-6.09	1334.80		
3	63.15	1.07	56.01	4.14	-0.32	1367.91	681.08	1367.91	680.95	12.76	1186.37		
4	51.85	1.97	52.56	-0.71	-6.55	819.96	1324.1	817.12	28.06	1040.12			
5	48.22	0.76	49.71	-3.49	-10.28	897.06	1287.10	884.54	12.01	923.07			
6	48.57	0.36	47.11	-0.54	-8.20	772.04	1099.35	740.99	4.66	782.66			
7	48.35	0.79	46.13	0.22	-7.68	735.59	1038.88	699.13	9.69	732.96			
RADIAL POSITION	REL EXIT FLW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL			
1	58.96	58.92	54.80	4.16	9.73	785.00	785.96	404.84	671.59	672.70			
2	58.86	52.38	54.42	1.44	11.22	778.27	846.25	474.46	615.73	699.69			
3	51.49	45.16	50.68	0.81	8.66	750.60	849.88	529.16	532.16	664.90			
4	41.23	42.40	43.79	4.74	3.61	713.67	795.60	529.87	483.89	593.35			
5	41.83	41.09	32.15	9.68	4.39	713.28	727.50	541.06	471.80	484.31			
6	32.50	46.48	14.29	18.21	14.07	723.97	993.29	494.83	521.07	315.22			
7	22.83	51.89	8.00	14.83	23.52	777.70	526.23	475.80	606.66	200.31			
RADIAL POSITION	RETN SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO							GHI		
1	158.64	0.489	1.336	0.959	0.637	0.637	0.523	0.523	0.523	0.523			
2	128.70	0.518	1.326	0.841	0.777	0.504	0.572	0.572	0.572	0.572			
3	119.13	0.634	1.273	0.777	0.648	0.504	0.595	0.595	0.595	0.595			
4	102.18	0.772	1.247	0.648	0.668	0.502	0.645	0.645	0.645	0.645			
5	73.08	0.857	1.230	0.612	0.668	0.529	0.670	0.670	0.670	0.670			
6	72.32	0.725	1.033	0.668	0.668	0.569	0.659	0.659	0.659	0.659			
7	74.65	0.688	0.972	0.681	0.681	0.622	0.679	0.679	0.679	0.679			
RADIAL POSITION	RETN SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	TOT PRESS LOSS P/BAM	ABB EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF			
1	144.29	0.637	0.638	1.330	0.246	0.848	0.7636	0.7842	0.837	0.412			
2	115.43	0.642	0.698	1.380	0.187	0.838	0.8186	0.837	0.837	0.427			
3	119.76	0.634	0.718	1.580	0.037	0.808	0.9610	0.9644	0.9644	0.308			
4	177.24	0.614	0.680	1.680	0.162	0.832	0.8084	0.8207	0.8207	0.579			
5	254.11	0.622	0.630	1.980	0.102	0.820	0.8681	0.8760	0.8760	0.623			
6	836.29	0.627	0.514	2.270	0.121	0.823	0.8693	0.8768	0.8768	0.676			
7	803.97	0.674	0.456	2.330	0.160	0.831	0.8460	0.8548	0.8548	0.732			
RADIAL POSITION	REPORT IMPRESSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO								
1	5.0000	1.994	1.277	1.924	1.257								
2	19.0800	1.976	1.264	1.950	1.257								
3	30.0000	1.848	1.215	1.801	1.210								
4	50.0000	1.665	1.167	1.605	1.179								
5	70.0000	1.566	1.146	1.546	1.153								
6	90.0000	1.519	1.149	1.519	1.146								
7	95.0000	1.589	1.163	1.621	1.151								
OVERALL PERFORMANCE SUMMARY													
		STAGE DATA				ROTOR DATA				ROTOR DATA			
		FIXED INST. FIXED INST.				FIXED INST. TRAV. INST.				FIXED INST. TRAV. INST.			
		1.6502				1.6827				1.7583			
		0.7804				0.8131				0.8711			
		0.7953				0.8263				0.8807			
		Discharge Valve Setting= 7.4											
		Percent Design Speed = 100.1				Cor. Nozzle Weight Flow= 203.2							
		1.0019				TE Check Flow/Noz.Flow = 0.9086							
		0.9850				Assumed LE Flow Coeff. = 0.9500							

TABLE XIV - TASK I STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Concluded)

STATOR BLADE ROW - NASA TASK IV

RADIAL POSITION		BLADE ELEMENT PERFORMANCE RESULTS										POINT NUMBER 31		DATE 97 1/1970	
		READING NUMBER 355													
REL INLET FLW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCLD ANG MN CMBR LN	INCLD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	INLET AX YANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
1	58.79	39.47	19.32	788.10	404.42	674.01	18.20	34.21	24.88	569.47	9.47	4.56	471.15	25.17	0.422
2	51.85	39.11	12.74	785.83	485.40	617.97	18.20	34.21	24.88	569.47	9.47	4.56	471.15	25.17	0.422
3	43.23	39.01	4.22	776.49	531.65	531.65	18.20	34.21	24.88	569.47	9.47	4.56	471.15	25.17	0.422
4	39.92	39.80	0.12	747.94	572.59	479.88	18.20	34.21	24.88	569.47	9.47	4.56	471.15	25.17	0.422
5	38.35	41.86	-2.51	748.12	583.65	461.83	18.20	34.21	24.88	569.47	9.47	4.56	471.15	25.17	0.422
6	43.86	42.22	1.64	731.23	522.75	502.39	18.20	34.21	24.88	569.47	9.47	4.56	471.15	25.17	0.422
7	49.36	42.76	6.60	773.65	499.86	582.45	18.20	34.21	24.88	569.47	9.47	4.56	471.15	25.17	0.422

RADIAL POSITION		YURN													
		CMBR LN	DEV ANG TE	INCLD ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	INLET AX YANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
1	1.87	13.00	56.91	557.16	556.86	18.20	34.21	24.88	569.47	9.47	4.56	471.15	25.17	0.422	
2	3.38	13.48	48.47	579.83	578.79	34.21	24.88	569.47	9.47	4.56	471.15	25.17	0.422	0.422	
3	2.90	11.37	40.73	570.24	569.47	24.88	569.47	9.47	4.56	471.15	25.17	0.422	0.422	0.422	
4	1.01	9.76	38.90	535.25	534.57	9.47	4.56	471.15	25.17	0.422	0.422	0.422	0.422	0.422	
5	0.50	9.60	37.85	519.52	518.38	4.56	4.26	471.15	25.17	0.422	0.422	0.422	0.422	0.422	
6	0.50	11.08	43.36	487.87	485.85	4.26	4.26	471.15	25.17	0.422	0.422	0.422	0.422	0.422	
7	59.05	9.31	52.41	473.33	471.15	25.17	0.422	0.422	0.422	0.422	0.422	0.422	0.422	0.422	

RADIAL POSITION		DIFFUSION															
		INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PARAM	EFFICIENCY	POLY MOMEN RISE/ RISE	STAY PRESS RISE COEFF	CHI FACTOR	0.295	0.320	0.378	0.421	0.447	0.478	0.422
1	0.640	1.363	1.363	1.5830	0.141	0.046	0.6212	0.274	0.274	0.266	0.295	0.320	0.378	0.421	0.447	0.478	0.422
2	0.649	1.392	1.392	1.5440	0.128	0.041	0.7235	0.298	0.298	0.266	0.295	0.320	0.378	0.421	0.447	0.478	0.422
3	0.658	1.007	1.007	1.6310	0.087	0.027	0.8303	0.354	0.354	0.266	0.295	0.320	0.378	0.421	0.447	0.478	0.422
4	0.642	0.934	0.934	1.7420	0.076	0.008	0.4668	0.307	0.307	0.266	0.295	0.320	0.378	0.421	0.447	0.478	0.422
5	0.649	0.888	0.888	1.8800	0.041	0.011	0.8680	0.422	0.422	0.266	0.295	0.320	0.378	0.421	0.447	0.478	0.422
6	0.634	0.929	0.929	2.0510	0.083	0.020	0.8681	0.454	0.454	0.266	0.295	0.320	0.378	0.421	0.447	0.478	0.422
7	0.670	0.943	0.943	2.0980	0.108	0.026	0.6882	0.596	0.596	0.266	0.295	0.320	0.378	0.421	0.447	0.478	0.422

RADIAL POSITION		OVERALL PERFORMANCE SUMMARY									
		PERCENT UNDERFLOW	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA	STATOR DATA	STATOR DATA	STATOR DATA
1	9.0000	0.90	0.963	0.965	1.000	1.000	Total Pressure Ratio = 1.6502	0.9807	0.9727	0.9727	0.9727
2	10.0000	0.965	0.984	0.978	1.000	1.000	Polytropic Efficiency = 0.7953	0.9625	0.9143	0.9143	0.9143
3	30.0000	0.977	0.995	0.994	1.000	1.000	Percent Design Speed = 100.1	Discharge Valve Setting = 7.4			
4	50.0000	0.982	0.999	0.994	1.000	1.000	Cor. Nozzle Weight Flow = 203.2				
5	70.0000	0.980	0.998	0.990	1.000	1.000					
6	90.0000	0.980	0.994	0.980	1.000	1.000					
7	95.0000	0.942	0.987	0.971	1.000	1.000					

RADIAL POSITION		IE Check Flow/Noz.Flow = 0.9134									
		Assumed IE Flow Coeff. = 0.9750									
1	9.0000	0.90	0.963	0.965	1.000	1.000	TE Check Flow/Noz.Flow = 0.9179	Assumed IE Flow Coeff. = 0.9750			
2	10.0000	0.965	0.984	0.978	1.000	1.000					
3	30.0000	0.977	0.995	0.994	1.000	1.000					
4	50.0000	0.982	0.999	0.994	1.000	1.000					
5	70.0000	0.980	0.998	0.990	1.000	1.000					
6	90.0000	0.980	0.994	0.980	1.000	1.000					
7	95.0000	0.942	0.987	0.971	1.000	1.000					

APPENDIX E

LISTING OF TASK I STAGE CIRCUMFERENTIAL
DISTORTION FLOW SURVEY DATA

TABLE XV - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA: 100% SPEED; MAXIMUM FLOW;
 SKEWED SLOTS #2 CASING TREATMENT

PLANE NO. # 0.95		RADIUS = 17,420		SLOPE = -1.92			
IMMERISION NO. # 1							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.70	10.82	518.69	-1.15	637.05	636.93	0.590
57.98	13.67	10.69	518.69	1.37	650.06	649.87	0.603
87.98	13.64	10.89	518.69	2.09	623.15	622.73	0.576
117.98	13.66	10.74	518.69	7.14	643.32	638.32	0.596
147.98	11.79	9.97	518.69	11.10	539.44	529.35	0.495
177.98	11.84	9.51	518.69	3.46	613.84	612.72	0.567
207.98	11.82	9.43	518.69	-0.96	623.65	623.57	0.677
237.98	13.71	10.04	518.69	-7.26	728.96	723.13	0.683
267.98	13.73	10.57	518.69	-4.95	670.22	667.72	0.823
297.98	13.67	10.60	518.69	-2.45	660.59	659.98	0.613
327.98	13.64	10.77	518.69	-1.79	638.27	637.96	0.591
357.98	13.74	10.69	518.69	-0.09	656.48	656.48	0.809
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1336.33	-12.75	1349.08	64.73	1491.88	1.382	3.26
57.98	1336.33	15.40	1320.73	63.80	1471.96	1.365	3.30
87.98	1336.33	22.71	1313.62	64.64	1453.75	1.344	3.20
117.98	1336.33	80.01	1256.32	63.07	1409.19	1.306	3.25
147.98	1336.33	103.83	1232.49	66.96	1341.36	1.230	2.45
177.98	1336.33	37.06	1299.27	64.75	1436.50	1.327	2.74
207.98	1336.33	-10.46	1346.79	65.16	1484.14	1.372	2.77
237.98	1336.33	-92.07	1428.40	63.15	1601.01	1.499	3.51
267.98	1336.33	-57.82	1394.15	64.41	1545.80	1.437	3.36
297.98	1336.33	-28.20	1364.53	64.19	1515.76	1.407	3.33
327.98	1336.33	-19.92	1356.24	64.81	1498.80	1.388	3.25
357.98	1336.33	-1.03	1337.36	63.85	1469.80	1.363	3.33

**TABLE XV - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
SKEWED SLOTS #2 CASING TREATMENT (Continued)**

PLANE NO. IMMERSION NO.	$\alpha = 0.95$ 3	RADIUS	$\theta = 13.797$	SLOPE	$\sigma = 4.85$		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.78	10.21	518.69	0.88	712.72	712.64	0.666
57.98	13.78	10.26	518.69	2.75	707.22	706.40	0.661
87.98	13.82	10.32	518.69	5.05	703.62	700.89	0.657
117.98	13.80	10.36	518.69	10.98	697.71	684.93	0.651
147.98	11.75	9.65	518.69	16.79	580.95	556.19	0.535
177.98	11.65	9.01	518.69	5.82	682.55	659.36	0.615
207.98	11.67	9.02	518.69	-3.98	663.43	661.83	0.616
237.98	13.78	9.64	518.69	-9.58	779.16	764.36	0.730
267.98	13.79	9.94	518.69	-5.87	744.24	740.34	0.698
297.98	13.79	10.05	518.69	-2.64	733.03	731.26	0.686
327.98	13.77	10.11	518.69	-1.44	723.65	723.42	0.677
357.98	13.82	10.19	518.69	1.61	718.43	718.15	0.672
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1058.40	10.98	1047.42	55.77	1266.86	1.184	3.76
57.98	1058.40	33.97	1024.43	55.41	1244.37	1.162	3.74
87.98	1058.40	61.92	996.48	54.88	1218.28	1.137	3.73
117.98	1058.40	132.94	925.46	53.50	1151.55	1.074	3.65
147.98	1058.40	167.77	890.63	58.02	1050.04	0.967	2.69
177.98	1058.40	64.93	993.47	56.43	1192.37	1.108	3.03
207.98	1058.40	-46.05	1104.45	59.07	1287.57	1.196	3.05
237.98	1058.40	-128.94	1187.34	57.23	1412.10	1.331	3.87
267.98	1058.40	-76.13	1134.53	56.87	1354.72	1.271	3.83
297.98	1058.40	-33.67	1092.07	56.19	1314.29	1.231	3.81
327.98	1058.40	-18.19	1076.59	56.10	1297.06	1.214	3.79
357.98	1058.40	20.17	1038.23	55.83	1262.40	1.181	3.78

TABLE XV - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
 SKEWED SLOTS #2 CASING TREATMEN. (Continued)

PLANE NO. IMPRESSION NO. #	0.95	RADIUS #	9.910	SLOPE #	15.60																
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS' FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.														
27.98	13.80	10.23	518.69	0.76	688.44	688.38	0.643														
57.98	13.81	10.31	518.69	3.53	681.06	679.76	0.636														
87.98	13.86	10.40	518.69	5.79	675.92	672.48	0.631														
117.98	13.80	10.46	518.69	15.72	665.10	640.24	0.620														
147.98	13.62	9.96	518.69	30.78	709.58	609.61	0.664														
177.98	11.61	9.06	518.69	9.88	630.29	620.95	0.585														
207.98	11.76	8.93	518.69	-10.47	663.25	652.20	0.618														
237.98	13.72	9.69	518.69	13.55	741.88	721.23	0.698														
257.98	13.82	9.98	518.69	-8.58	717.86	709.83	0.673														
277.98	13.76	10.04	518.69	-6.11	705.68	701.68	0.661														
327.98	13.79	10.11	518.69	-3.34	700.48	699.29	0.656														
357.98	13.73	10.16	518.69	-0.93	690.68	690.59	0.646														
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW														
27.98	760.22	9.16	751.06	47.49	1018.81	0.952	2.38														
57.98	760.22	41.97	718.25	46.58	988.92	0.923	2.36														
87.98	760.22	68.18	692.04	45.82	964.96	0.900	2.35														
117.98	760.22	180.16	580.06	42.18	863.93	0.805	2.25														
147.98	760.22	363.15	397.07	33.08	727.52	0.661	2.06														
177.98	760.22	108.12	652.10	46.40	900.45	0.835	1.87														
207.98	760.22	173.82	880.77	53.48	1095.96	1.021	1.95														
237.98	760.22	120.55	934.04	52.33	1180.08	1.111	2.39														
267.98	760.22	107.07	867.29	50.70	1120.74	1.051	2.41														
297.98	760.22	175.05	835.27	49.97	1090.88	1.052	2.39														
327.98	760.22	40.79	801.01	48.88	1063.31	0.995	2.40														
357.98	760.22	11.20	771.42	48.16	1035.37	0.968	2.37														

TABLE XV - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
 SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO. # 1/51	RADIUS # 17.081	SLOPE # -0.83												
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	LOCAL WT. FLOW	
15.00	18.73	13.96	579.46	25.75	749.42	675.02	0.862	1310.32	325.33	984.79	55.57	1.055	3.33	
45.00	18.58	13.90	577.88	26.45	743.51	665.66	0.857	1310.32	331.22	979.11	55.79	1.042	3.27	
75.00	18.44	13.86	575.90	27.49	736.19	653.04	0.852	1310.32	339.88	970.45	56.06	1.035	3.21	
105.00	18.15	13.81	572.11	29.49	718.41	625.33	0.837	1310.32	353.66	956.66	56.83	1.013	3.07	
135.00	16.84	13.59	560.35	40.86	652.39	478.26	0.862	1310.32	413.74	896.58	61.92	0.903	2.32	
165.00	17.98	13.66	568.54	39.18	735.89	570.39	0.839	1310.32	464.95	845.37	55.99	0.886	2.66	
195.00	18.30	13.74	600.12	36.40	753.20	606.28	0.853	1310.32	446.92	863.48	54.92	0.915	2.84	
225.00	20.39	14.39	619.95	23.28	840.27	771.85	0.723	1310.32	332.11	978.21	51.72	1.073	3.72	
255.00	19.24	14.24	586.23	21.43	761.87	709.22	0.870	1310.32	278.31	1032.01	52.90	1.101	3.53	
285.00	19.00	14.05	582.58	23.19	760.49	699.02	0.871	1310.32	299.51	1010.81	53.33	1.084	3.46	
315.00	18.67	13.97	582.13	24.73	788.80	689.19	0.870	1310.32	317.49	992.84	55.23	1.066	3.39	
345.00	18.76	13.95	580.30	25.12	752.10	680.94	0.864	1310.32	319.33	991.00	55.51	1.062	3.35	

TABLE XV - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
 SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. = 1.51		RADIUS # 14.056		SLOPE # 3.14			
IMPRESSION NO. = 3							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	19.56	13.87	589.67	33.66	813.48	677.13	0.718
45.00	19.27	13.71	587.90	34.91	808.26	662.84	0.714
75.00	19.04	13.74	585.74	36.30	791.19	637.64	0.699
105.00	18.57	13.50	580.72	39.22	779.05	603.53	0.690
135.00	17.22	13.26	568.77	51.12	701.56	440.40	0.623
165.00	17.53	13.23	590.01	49.24	739.69	482.90	0.646
195.00	18.06	13.35	593.20	41.97	767.61	570.71	0.671
225.00	20.07	14.11	619.09	32.93	843.54	708.03	0.727
255.00	20.11	14.31	597.88	30.39	814.87	702.94	0.713
285.00	19.22	13.90	594.97	33.81	794.12	659.81	0.695
315.00	19.54	13.95	591.58	32.41	806.87	681.21	0.710
345.00	19.53	13.82	590.22	33.14	815.72	683.06	0.719

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	1078.27	450.62	627.45	42.82	923.14	0.814	3.67
45.00	1078.27	462.52	615.75	42.99	904.71	0.799	3.56
75.00	1078.27	468.41	608.86	43.72	882.33	0.779	3.43
105.00	1078.27	492.62	585.65	44.14	840.98	0.745	3.21
135.00	1078.27	546.11	532.16	50.39	690.76	0.613	2.31
165.00	1078.27	560.31	517.96	47.01	708.15	0.619	2.45
195.00	1078.27	533.34	564.93	44.71	803.02	0.702	2.92
225.00	1078.27	488.54	619.73	41.20	940.94	0.811	3.72
255.00	1078.27	412.18	666.09	43.46	968.40	0.848	3.87
285.00	1078.27	441.91	636.36	43.96	916.68	0.803	3.53
315.00	1078.27	432.42	645.85	43.47	938.70	0.826	3.69
345.00	1078.27	445.89	632.38	42.79	930.84	0.821	3.68

TABLE XV - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
 SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO. #	# 1.51 5	RADIUS #	11.030	SLOPE #	11.17		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	20.90	13.96	594.51	38.34	874.35	683.40	0.772
45.00	20.62	13.86	591.79	39.33	863.49	667.92	0.766
75.00	20.38	13.75	589.24	40.09	858.01	56.40	0.763
105.00	19.87	13.54	584.02	42.01	844.79	627.75	0.753
135.00	18.59	13.05	573.26	47.92	794.99	532.77	0.711
165.00	17.72	12.86	576.84	54.16	774.32	453.34	0.688
195.00	17.95	12.90	591.32	49.31	793.51	517.33	0.698
225.00	20.26	14.03	611.75	32.03	844.28	715.72	0.734
255.00	21.09	14.14	608.31	39.07	877.83	681.51	0.768
285.00	20.60	14.00	599.47	38.03	857.78	675.66	0.755
315.00	20.81	13.99	595.83	37.49	866.23	687.34	0.866
345.00	20.94	13.98	594.77	38.01	872.26	687.29	0.773
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.
15.00	846.14	540.57	305.57	24.09	748.60	0.663	2.24
45.00	846.14	547.27	298.87	24.11	731.74	0.649	2.18
75.00	846.14	552.56	293.58	24.10	719.06	0.639	2.13
105.00	846.14	565.33	280.81	24.10	687.69	0.613	2.02
135.00	846.14	590.05	256.09	25.67	591.13	0.529	1.96
165.00	846.14	627.74	218.40	25.72	503.20	0.447	1.88
195.00	846.14	601.69	244.45	25.29	572.18	0.503	1.94
225.00	846.14	447.84	398.30	29.10	819.08	0.712	2.27
255.00	846.14	593.28	292.86	23.25	741.77	0.649	2.21
285.00	846.14	528.47	317.67	25.18	746.61	0.657	2.19
315.00	846.14	527.17	318.97	24.89	757.75	0.670	2.25
345.00	846.14	537.10	309.04	24.81	753.57	0.668	2.25

TABLE XV - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
 SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO.	2.20 1	RADIUS = 17.130		SLOPE = 0.24			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
6.83	18.02	12.92	579.12	0.02	794.20	794.20	0.706
36.83	17.89	13.07	577.40	0.31	771.78	771.77	0.685
66.83	17.86	13.39	576.21	0.67	740.22	740.17	0.655
96.83	17.79	13.54	574.65	0.62	720.28	720.24	0.637
126.83	17.35	14.12	569.36	1.21	626.21	626.06	0.551
156.83	16.81	14.12	584.09	1.71	584.29	584.03	0.505
186.83	17.86	14.09	604.69	2.86	689.86	689.00	0.592
216.83	18.18	13.78	609.51	2.89	747.51	746.56	0.642
246.83	19.04	13.44	592.96	1.90	821.65	821.20	0.723
276.83	18.37	13.13	587.00	1.24	803.37	803.18	0.709
306.83	18.22	12.91	583.78	0.58	811.82	811.78	0.720
336.83	18.12	12.82	582.28	0.26	811.44	811.44	0.721
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
6.83	1314.08	0.35	1313.74	58.85	1535.14	1.364	3.38
36.83	1314.08	4.14	1309.94	59.49	1520.39	1.350	3.32
66.83	1314.08	8.69	1305.39	60.45	1500.63	1.329	3.24
96.83	1314.08	7.77	1306.31	61.13	1491.71	1.320	3.19
126.83	1314.08	13.26	1300.82	64.30	1443.64	1.271	2.86
156.83	1314.08	17.44	1296.64	65.75	1422.10	1.230	2.58
186.83	1314.08	34.43	1279.66	61.70	1453.36	1.247	2.98
216.83	1314.08	37.68	1276.40	59.68	1478.70	1.271	3.17
246.83	1314.08	27.24	1286.84	57.46	1526.54	1.344	3.57
276.83	1314.08	17.42	1296.66	58.23	1525.26	1.349	3.43
306.83	1314.08	8.20	1305.88	58.13	1537.63	1.363	3.44
336.83	1314.08	3.66	1310.42	58.23	1541.51	1.369	3.42

TABLE XV - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
 SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO.	IMPERISON NO.	RADIUS	SLOPE	CIRC. POSITION	TOT. PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
2420	3	14.420	1.13	29.00	12.58	585.55	0.13	852.45	852.45	0.759
				59.00	12.77	583.52	0.09	828.14	828.14	0.736
				89.00	13.03	581.19	-0.05	794.54	794.54	0.705
				119.00	13.49	573.80	-0.55	716.95	716.92	0.633
				149.00	13.63	568.33	-0.24	640.11	640.11	0.565
				179.00	13.39	590.47	0.83	740.18	740.10	0.647
				209.00	13.22	595.45	1.24	769.56	769.38	0.672
				239.00	12.97	611.95	1.65	893.18	892.81	0.780
				269.00	12.71	593.95	0.59	867.20	867.16	0.767
				299.00	12.34	587.36	-0.27	859.50	859.49	0.764
				329.00	12.39	586.43	-0.16	868.65	868.65	0.774
				359.00	12.41	586.74	0.05	872.38	872.38	0.778
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW			
29.00	1106.19	1.95	1104.24	52.33	1395.00	1.242	3.86			
59.00	1106.19	1.29	1104.90	53.15	1380.80	1.227	3.80			
89.00	1106.19	-0.66	1106.85	54.33	1362.50	1.208	3.71			
119.00	1106.19	-6.86	1113.05	57.21	1323.96	1.169	3.44			
149.00	1106.19	-2.63	1108.82	60.00	1280.32	1.130	3.09			
179.00	1106.19	10.67	1095.52	55.95	1325.09	1.155	3.44			
209.00	1106.19	16.67	1089.53	54.77	1333.80	1.164	3.52			
239.00	1106.19	25.74	1080.45	50.43	1401.60	1.224	4.02			
269.00	1106.19	8.95	1097.24	51.68	1398.53	1.237	3.93			
299.00	1106.19	-3.99	1110.18	52.25	1404.00	1.249	3.82			
329.00	1106.19	-2.46	1108.69	51.92	1408.43	1.255	3.89			
359.00	1106.19	0.80	1105.39	51.72	1408.17	1.255	3.91			

TABLE XV - TASK 1 STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
SKEWED SLOTS #2 CASING TREATMENT (Concluded)

PLANE NO. = 2.20 IMMERSION NO. = 5		RADIUS = 11.775		SLOPE = 1.14			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
18.56	18.75	12.12	591.93	-5.58	913.31	908.98	0.815
48.56	19.06	12.60	588.24	-4.11	888.16	885.88	0.792
78.56	19.50	12.87	586.22	-2.12	888.16	887.56	0.994
108.56	19.46	13.05	582.07	-0.95	868.79	868.67	0.978
138.56	18.46	13.39	572.79	-0.40	776.44	776.42	0.693
168.56	16.11	13.85	557.80	5.33	532.03	529.73	0.769
198.56	16.94	13.55	588.04	2.63	681.85	681.13	0.593
228.56	17.93	12.42	605.05	-0.10	851.16	851.16	0.744
258.56	19.72	12.31	610.76	-4.16	961.33	958.79	0.849
288.56	18.91	11.60	598.67	+5.84	968.57	963.53	0.866
318.56	18.76	11.59	596.02	-6.55	959.16	952.90	0.858
348.56	18.77	11.77	593.12	-6.55	942.81	936.66	0.844
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.
18.56	903.29	-88.83	992.12	47.50	1345.56	1.200	2.36
48.56	903.29	-63.64	966.93	47.50	1311.39	1.170	2.39
78.56	903.29	-32.84	936.13	46.53	1290.00	1.153	2.45
108.56	903.29	-14.48	917.76	46.57	1263.68	1.131	2.44
138.56	903.29	-5.36	908.64	49.49	1195.19	1.066	2.22
168.56	903.29	49.44	853.85	58.18	1004.83	0.887	1.54
198.56	903.29	31.27	872.02	52.01	1106.51	0.963	1.85
228.56	903.29	-1.55	903.84	46.75	1242.26	1.085	2.17
258.56	903.29	-69.80	973.09	45.42	1366.08	1.206	2.47
288.56	903.29	-98.63	1001.92	46.12	1390.05	1.242	2.40
318.56	903.29	-109.34	1013.63	46.74	1390.48	1.244	2.38
348.56	903.29	-107.48	1010.77	47.18	1378.04	1.233	2.38

TABLE XVI - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
 SKEWED SLOTS #2 CASING TREATMENT

PLANE NO, IMPRESSION NO. =	0.95	1	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
CIRC. POSITION	RADIUS = 17.420 SLOPE = -1.92								
27.98	13.83	11.04	518.69	0.44	622.86	322.85	0.576		
57.98	13.81	10.91	518.69	1.45	636.79	636.59	0.890		
87.98	13.86	11.06	518.69	1.94	623.46	623.10	0.577		
117.98	13.80	10.88	518.69	4.98	639.60	637.18	0.593		
147.98	12.20	10.31	518.69	6.18	541.14	538.00	0.496		
177.98	12.21	10.16	518.69	-2.62	565.30	564.71	0.520		
207.98	12.20	10.57	518.69	-9.55	508.07	493.14	0.757		
237.98	13.77	11.73	518.69	-10.29	528.11	519.61	0.484		
267.98	13.78	11.58	518.69	-0.49	550.02	550.00	0.505		
297.98	13.82	11.20	518.69	2.00	602.03	601.66	0.555		
327.98	13.84	11.10	518.69	1.72	617.12	616.84	0.570		
357.98	13.88	10.92	518.69	0.76	642.58	642.52	0.595		
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW		
27.98	1336.33	4.79	1331.54	64.93	1470.01	1.359	3.24		
57.98	1336.33	16.16	1320.17	64.26	1465.64	1.359	3.29		
87.98	1336.33	21.11	1315.32	64.65	1455.36	1.346	3.25		
117.98	1336.33	55.52	1280.81	63.95	1430.55	1.325	3.28		
147.98	1336.33	58.22	1278.11	67.17	1386.73	1.272	2.57		
177.98	1336.33	-25.70	1362.12	67.48	1474.54	1.356	2.67		
207.98	1336.33	-82.97	1419.33	70.84	1502.53	1.373	2.40		
237.98	1336.33	-94.35	1430.68	70.04	1522.11	1.394	2.82		
267.98	1336.33	4.69	1341.02	67.70	1449.43	1.331	2.96		
297.98	1336.33	21.01	1335.32	65.42	1446.40	1.335	3.17		
327.98	1336.33	18.51	1337.82	64.92	1455.04	1.345	3.22		
357.98	1336.33	8.93	1327.86	64.18	1475.09	1.367	3.32		

TABLE XVI - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO. = 0.95	RADIUS = 13.797	SLOPE = 4.85												
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	LOCAL WT. FLOW	
27.98	13.93	10.43	518.69	2.02	700.58	700.15	0.654	1058.40	24.69	1033.71	55.89	1.165	3.76	
57.98	13.93	10.44	518.69	2.18	699.41	698.90	0.653	1058.40	26.85	1031.75	55.89	1.163	3.76	
87.98	13.99	10.49	518.69	3.68	698.77	697.32	0.652	1058.40	44.90	1013.58	55.47	1.148	3.76	
117.98	13.94	10.52	518.69	8.49	692.26	684.67	0.645	1058.40	90.94	956.22	54.40	1.096	3.70	
147.98	12.14	9.88	518.69	8.81	593.96	586.95	0.548	1058.40	90.94	967.46	58.76	1.043	2.92	
177.98	12.16	10.15	518.69	-8.44	558.53	552.49	0.513	1058.40	-61.94	1140.34	64.15	1.164	2.80	
207.98	12.11	10.36	518.69	-16.45	519.81	498.54	0.476	1058.40	-117.50	1205.58	67.15	1.194	2.56	
237.98	13.90	11.50	518.69	-11.77	571.52	559.51	0.526	1058.40	-117.50	1174.97	64.54	1.197	3.22	
267.98	13.91	11.03	518.69	-3.50	630.21	629.03	0.603	1058.40	-116.57	1096.92	60.17	1.170	3.51	
297.98	13.95	10.66	518.69	-0.69	676.56	676.52	0.630	1058.40	-8.09	1066.49	57.61	1.175	3.69	
327.98	13.95	10.54	518.69	0.55	690.56	690.53	0.644	1058.40	6.62	1051.78	56.71	1.173	3.74	
357.98	13.96	10.46	518.69	1.54	700.34	700.09	0.654	1058.40	18.80	1039.60	56.04	1.170	3.77	

TABLE XVI - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
 SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. IMMERISION NO. #	0.95 5	RADIUS #	9.910	SLOPE =	15.60		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.94	10.52	518.69	1.66	669.43	669.15	0.624
57.98	13.94	10.55	518.69	2.50	665.01	664.37	0.620
87.98	14.02	10.60	518.69	5.04	666.86	664.28	0.621
117.98	13.93	10.70	518.69	12.29	649.47	634.60	0.604
147.98	12.95	10.19	518.69	25.62	623.29	562.00	0.578
177.98	12.25	10.24	518.69	-12.77	538.39	525.07	0.495
207.98	12.55	10.38	518.69	-26.28	555.61	498.21	0.511
237.98	13.92	11.02	518.69	-19.23	613.62	579.39	0.568
267.98	13.96	10.95	518.69	-6.50	624.74	620.96	0.579
297.98	13.90	10.68	518.69	-1.22	648.09	647.94	0.603
327.98	13.92	10.58	518.69	0.36	660.32	660.31	0.615
357.98	13.88	10.49	518.69	0.83	666.79	666.72	0.621
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MW. FLOW
27.98	760.22	19.33	740.89	47.91	998.34	0.931	2.37
57.98	760.22	28.97	731.25	47.74	987.99	0.921	2.35
87.98	760.22	58.54	701.68	46.57	966.24	0.900	2.37
117.98	760.22	138.21	622.01	44.43	888.60	0.826	2.27
147.98	760.22	269.53	490.69	41.12	746.07	0.694	1.90
177.98	760.22	-119.01	879.23	59.15	1024.08	0.941	1.76
207.98	760.22	-245.96	1006.18	63.66	1122.77	1.033	1.69
237.98	760.22	-202.06	962.28	58.95	1125.25	1.040	2.12
267.98	760.22	-68.59	828.81	53.16	1035.62	0.960	2.26
297.98	760.22	-13.79	774.01	50.07	1009.41	0.939	2.31
327.98	760.22	4.15	756.07	48.87	1003.82	0.935	2.34
357.98	760.22	9.60	750.62	48.89	1003.96	0.936	2.35

TABLE XVI - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL; SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO, IMMERSION NO, #	1:51	RADIUS =	17.081	SLOPE =	-0.83										
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	LOCAL WT. FLOW		
15.00	21.99	15.18	605.08	26.96	854.73	761.86	0.747	1310.32	387.47	922.86	50.46	1.046	4.00		
45.00	22.05	15.27	605.93	27.25	851.87	757.30	0.744	1310.32	390.10	920.22	50.55	1.041	3.99		
75.00	21.95	15.20	604.94	27.91	850.95	751.98	0.744	1310.32	398.29	912.04	50.49	1.033	3.95		
105.00	21.88	15.17	604.76	29.07	839.35	733.63	0.732	1310.32	407.81	902.51	50.89	1.015	3.84		
135.00	20.82	15.09	596.71	35.54	793.58	645.76	0.694	1310.32	461.28	849.05	52.74	0.932	3.37		
165.00	23.47	15.76	640.70	34.50	909.95	749.92	0.776	1310.32	515.39	1092.84	46.67	0.938	3.89		
195.00	24.08	15.85	657.22	35.99	943.45	763.37	0.797	1310.32	554.40	1074.32	44.72	0.907	3.90		
225.00	24.65	15.84	677.36	34.64	982.89	808.02	0.820	1310.32	558.77	1103.95	42.91	0.921	4.04		
255.00	21.97	15.18	646.81	35.45	883.36	719.69	0.747	1310.32	558.77	1103.95	42.91	0.909	3.53		
285.00	22.20	15.19	614.46	32.66	871.20	733.47	0.757	1310.32	470.12	1151.31	48.88	0.969	3.60		
315.00	22.00	15.25	607.57	28.21	852.18	750.94	0.743	1310.32	402.85	1177.89	50.39	1.029	3.94		
345.00	22.00	15.34	607.52	27.06	845.05	752.57	0.736	1310.32	384.38	1193.20	50.90	1.039	3.97		

TABLE XVI - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
 SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. IMPRESSION NO. =	1.51 3	RADIUS =	14.056	SLOPE =	3.14		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	21.85	14.83	602.22	34.27	870.64	719.47	0.765
45.00	21.80	14.84	599.58	35.06	865.22	708.20	0.761
75.00	21.86	14.82	599.21	35.40	869.20	708.49	0.765
105.00	21.58	14.74	598.07	36.91	860.32	687.89	0.758
135.00	20.68	14.68	599.00	42.55	811.60	597.88	0.716
165.00	22.11	15.08	619.72	42.33	877.65	648.80	0.759
195.00	22.19	14.98	636.13	51.24	900.47	563.75	0.770
225.00	23.03	15.11	648.42	48.74	939.99	619.92	0.800
255.00	21.03	14.64	633.19	44.62	869.28	615.92	0.739
285.00	21.54	14.70	605.85	38.77	866.94	675.91	0.759
315.00	21.84	14.84	600.89	35.43	867.94	707.18	0.763
345.00	21.91	14.84	601.69	34.76	871.98	716.36	0.766
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	1078.27	490.29	587.98	39.26	929.17	0.816	4.13
45.00	1078.27	497.05	561.22	39.38	916.17	0.806	4.08
75.00	1078.27	503.53	574.74	39.05	912.29	0.803	4.09
105.00	1078.27	516.73	561.54	39.23	887.95	0.782	3.94
135.00	1078.27	548.84	520.43	41.53	798.60	0.705	3.43
165.00	1078.27	591.05	487.22	36.91	811.57	0.702	3.68
195.00	1078.27	702.17	376.10	33.71	672.61	0.580	3.10
225.00	1078.27	706.59	371.68	30.95	722.81	0.615	3.40
255.00	1078.27	607.74	470.53	37.38	775.08	0.662	3.30
285.00	1078.27	542.88	535.38	38.38	862.26	0.754	3.82
315.00	1078.27	503.20	575.07	39.12	911.49	0.801	4.07
345.00	1078.27	497.16	561.13	39.05	922.42	0.811	4.12

TABLE XVI - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. IMPERSON NO.	#	1.51	RADIUS #	11.030	SLOPE #	11.17	
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	21.36	14.46	595.79	41.65	860.12	642.67	0.760
45.00	21.41	14.48	593.57	41.91	859.41	639.60	0.761
75.00	21.23	14.43	593.82	42.93	854.55	625.72	0.756
105.00	20.96	14.33	589.57	44.12	845.86	607.24	0.750
135.00	20.06	14.27	582.14	49.91	799.50	514.87	0.710
165.00	21.91	14.59	601.09	53.85	884.26	521.68	0.780
195.00	20.76	14.70	612.31	61.95	827.73	389.24	0.717
225.00	21.83	14.91	628.09	47.82	904.18	607.11	0.780
255.00	21.84	14.62	608.85	40.66	880.69	668.10	0.771
285.00	22.04	14.59	601.89	42.96	887.58	649.55	0.783
315.00	21.47	14.45	594.45	42.59	865.18	636.91	0.766
345.00	21.44	14.48	594.48	41.68	861.43	643.42	0.762
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	846.14	571.65	274.48	23.13	698.83	0.617	2.17
45.00	846.14	574.02	272.12	23.05	695.08	0.615	2.17
75.00	846.14	582.00	264.13	22.89	679.18	0.601	2.11
105.00	846.14	588.84	257.29	22.96	659.50	0.585	2.04
135.00	846.14	611.64	234.49	24.49	565.75	0.502	1.73
165.00	846.14	713.98	132.15	14.22	538.16	0.474	1.77
195.00	846.14	730.49	115.65	16.35	406.06	0.352	1.28
225.00	846.14	670.04	176.10	16.18	632.13	0.545	1.96
255.00	846.14	573.80	272.33	22.18	721.47	0.631	2.24
285.00	846.14	604.89	241.25	20.38	692.90	0.611	2.20
315.00	846.14	589.56	260.57	22.25	688.15	0.609	2.15
345.00	846.14	572.78	273.36	23.02	699.08	0.618	2.18

TABLE XVI - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
 SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. IMMERISION NO.	PLANE NO. IMMERISION NO.	RADIUS	SLOPE	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
2.20	1	17.330	0.24				
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
6.83	21.55	17.77	608.84	2.08	626.02	625.60	0.532
36.83	21.61	17.80	610.60	1.90	628.70	628.35	0.533
66.83	21.53	17.83	610.08	1.93	620.16	619.81	0.526
96.83	21.44	17.91	608.89	1.87	605.62	605.30	0.514
126.83	21.00	17.95	605.31	2.66	565.32	564.71	0.479
156.83	21.31	17.71	623.41	2.82	621.91	620.76	0.521
186.83	23.23	17.49	654.17	2.49	782.88	782.14	0.650
216.83	23.35	17.39	663.66	3.03	802.95	801.83	0.663
246.83	21.60	17.43	652.61	3.09	682.46	681.47	0.562
276.83	21.80	17.59	635.86	3.01	674.15	673.22	0.562
306.83	21.43	17.76	613.66	2.39	620.44	620.44	0.525
336.83	21.52	17.76	609.61	2.08	624.98	624.57	0.531
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
6.83	1314.08	22.78	1291.31	64.15	1434.87	1.219	3.35
36.83	1314.08	20.88	1291.20	64.09	1437.78	1.220	3.36
66.83	1314.08	20.94	1293.15	64.39	1434.01	1.216	3.32
96.83	1314.08	19.72	1294.36	64.94	1428.90	1.212	3.25
126.83	1314.08	26.27	1287.81	66.32	1406.18	1.192	3.04
156.83	1314.08	30.53	1283.56	64.19	1425.79	1.196	3.23
186.83	1314.08	33.95	1280.14	58.58	1500.16	1.246	3.94
216.83	1314.08	42.44	1271.62	57.17	1503.35	1.241	3.97
246.83	1314.08	36.73	1277.39	61.92	1447.77	1.192	3.36
276.83	1314.08	35.38	1278.71	62.23	1445.10	1.205	3.44
306.83	1314.08	25.93	1280.15	64.28	1429.78	1.209	3.29
336.83	1314.08	22.68	1291.48	64.19	1434.51	1.218	3.34

TABLE XVI - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
 SKEWED SLOTS #2 CASING TREATMENT (Continued)

PLANE NO. = 2420		RADIUS = 14.420		SLOPE = 1.13			
IMMERSTION NO. = 3							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
29.00	21.49	16.92	600.59	1.35	690.10	689.91	0.594
59.00	21.45	17.01	599.45	1.27	679.33	679.16	0.585
89.00	21.45	17.13	598.72	0.94	669.40	669.31	0.576
119.00	21.17	17.24	595.92	1.00	638.38	638.28	0.549
149.00	20.14	17.46	587.10	0.36	531.18	531.17	0.456
179.00	20.88	17.46	611.59	-2.17	604.74	604.30	0.512
209.00	20.42	17.05	619.73	-3.89	614.13	612.71	0.516
239.00	21.93	17.04	639.13	-4.21	731.16	729.19	0.611
269.00	20.50	17.20	617.03	-1.49	602.62	602.42	0.507
299.00	21.30	16.94	601.78	-0.35	676.42	676.40	0.581
329.00	21.50	16.88	600.59	0.88	694.23	694.15	0.598
359.00	21.45	16.87	601.73	1.49	692.58	692.35	0.596

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL W. FLOW
29.00	1106.19	16.26	1089.93	57.67	1289.93	1.111	3.94
59.00	1106.19	15.02	1091.17	58.10	1285.27	1.107	3.90
89.00	1106.19	11.01	1095.18	58.57	1283.51	1.105	3.86
119.00	1106.19	11.13	1095.07	59.76	1267.51	1.090	3.71
149.00	1106.19	5.31	1102.89	64.28	1224.13	1.051	3.41
179.00	1106.19	-22.93	1129.12	61.84	1280.66	1.083	3.44
209.00	1106.19	-41.67	1147.86	61.91	1301.15	1.094	3.36
239.00	1106.19	-33.62	1159.82	57.84	1370.00	1.146	3.95
269.00	1106.19	-15.71	1121.90	61.77	1273.41	1.072	3.34
299.00	1106.19	-4.15	1110.35	58.65	1300.15	1.119	3.85
329.00	1106.19	10.63	1095.56	57.64	1296.95	1.119	3.96
359.00	1106.19	18.04	1088.15	57.53	1288.74	1.110	3.94

TABLE XVI - TASK I STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
 SKEWED SLOTS #2 CASING TREATMENT (Concluded)

PLANE NO. IMMERSION NO.	2.20 5	RADIUS =	11.775	SLOPE =	1.14		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
18.56	21.02	16.70	593.07	0.16	673.92	673.92	0.583
48.56	21.02	16.69	592.13	0.02	673.47	673.47	0.583
78.56	20.99	16.86	590.22	0.11	659.62	655.61	0.568
108.56	20.89	16.96	589.96	0.35	640.33	640.32	0.554
138.56	20.09	17.44	585.65	2.18	527.37	526.98	0.453
168.56	18.37	18.01	578.49	6.49	197.79	196.53	0.166
198.56	18.03	17.90	600.85	2.68	121.88	121.75	0.102
228.56	19.05	17.74	619.05	-1.19	387.57	387.49	0.321
258.56	21.70	16.72	613.30	-0.97	728.01	727.90	0.622
288.56	21.91	16.40	600.28	-0.61	756.96	756.92	0.657
318.56	21.26	16.55	593.17	-1.26	701.57	701.50	0.609
348.56	21.05	16.57	592.19	-0.08	685.79	685.79	0.595
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
18.56	903.29	1.90	901.39	53.22	1125.46	0.974	2.27
48.56	903.29	0.27	903.02	53.28	1126.50	0.976	2.27
78.56	903.29	1.30	901.99	53.99	1115.08	0.966	2.23
108.56	903.29	3.95	899.33	54.55	1104.00	0.955	2.18
138.56	903.29	20.10	883.19	59.18	1028.46	0.884	1.83
168.56	903.29	22.34	880.95	77.42	902.60	0.767	0.69
198.56	903.29	5.70	897.59	82.28	905.81	0.754	0.41
228.56	903.29	-8.03	911.32	66.97	990.27	0.820	1.27
258.56	903.29	-12.29	915.58	51.51	1169.67	1.000	2.39
288.56	903.29	-8.02	911.51	50.29	1184.66	1.028	2.51
318.56	903.29	-15.42	918.74	52.84	1159.91	1.003	2.35
348.56	903.29	-0.93	904.22	52.82	1134.87	0.984	2.30

APPENDIX F

LISTING OF TASK II STAGE UNDISTORTED
INLET BLADE ELEMENT DATA

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA

093070		INLET GUIDE VANES 3 NASA TASK IV-B										
		BLADE ELEMENT PERFORMANCE RESULTS										
		POINT NUMBER	13	READING NUMBER	430	DATE	9/29/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YAW VEL	INLET REL YAW VEL	INLET AX YAW VEL	
1	0.30	0.30	0.0	0.0	0.0	490.22	532.12	490.22	2.61	2.61	2.61	
2	0.23	0.23	0.0	0.0	0.0	532.20	532.12	532.20	-2.17	-2.17	-2.17	
3	0.03	0.03	0.0	0.0	0.0	606.39	606.32	606.32	-0.29	-0.29	-0.29	
4	0.47	0.47	0.0	0.0	0.0	611.21	610.92	611.21	5.06	5.06	5.06	
5	0.59	0.59	0.0	0.0	0.0	608.58	607.50	608.58	6.23	6.23	6.23	
6	0.90	0.90	0.0	0.0	0.0	605.16	607.22	607.22	6.58	6.58	6.58	
7	1.08	1.08	0.0	0.0	0.0	592.73	592.12	592.12	11.16	11.16	11.16	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YAW VEL	EXIT REL YAW VEL	EXIT AX YAW VEL	
1	0.35	0.35	0.0	0.0	0.63	592.00	591.94	591.94	3.60	3.60	3.60	
2	0.40	0.40	0.0	0.0	-0.63	615.25	615.22	615.22	4.30	4.30	4.30	
3	0.29	0.29	0.0	0.0	-0.32	670.67	670.33	670.33	3.38	3.38	3.38	
4	0.19	0.19	0.0	0.0	-0.32	686.10	685.96	685.96	0.43	0.43	0.43	
5	0.15	0.15	0.0	0.0	0.74	676.04	676.04	676.04	-1.78	-1.78	-1.78	
6	1.36	1.36	0.0	0.0	2.27	625.07	606.09	606.09	-14.44	-14.44	-14.44	
7	1.64	1.64	0.0	0.0	2.72	581.53	561.19	561.19	-16.10	-16.10	-16.10	
RADIAL POSITION	RBTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VFL RATIO	YAW LOSS COEFFICIENT	TR V LOSS	TR V PRESS LOSS	DIFFUSION FACTOR	GM1			
1	0.456	0.456	0.456	1.166	0.068	0.026	0.026	0.181	0.457			
2	0.488	0.488	0.488	1.156	0.075	0.029	0.029	0.161	0.395			
3	0.560	0.560	0.560	1.106	-0.003	-0.001	-0.001	0.108	0.216			
4	0.564	0.564	0.564	1.108	-0.087	-0.003	-0.003	0.125	0.247			
5	0.562	0.562	0.562	1.082	-0.023	-0.008	-0.008	0.097	0.188			
6	0.261	0.261	0.261	0.999	0.037	0.005	0.005	0.111	0.056			
7	0.546	0.546	0.546	0.948	0.045	0.004	0.004	0.032	0.029			
RADIAL POSITION	RBTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	YAW YCT	FIXED TOY	TEMP RATIO	FIXED TOY TEMP RATIO	MOMENT RISE/ HEAD Y RISE		X/Y PRESS COEFF		
1	0.544	0.544	0.544	1.309	0.924	1.000	1.000	0.424		0.424		
2	0.560	0.560	0.560	1.317	0.924	1.000	1.000	0.164		0.164		
3	0.622	0.622	0.622	1.368	0.925	1.000	1.000	0.196		0.196		
4	0.617	0.617	0.617	1.419	0.925	1.000	1.000	0.224		0.224		
5	0.622	0.622	0.622	1.508	0.924	1.000	1.000	0.172		0.172		
6	0.574	0.574	0.574	1.648	0.925	1.000	1.000	0.181		0.181		
7	0.534	0.534	0.534	1.718	0.925	1.000	1.000	0.181		0.181		
RADIAL POSITION	PERCENT IMMERSION	PPRESS RATIO	TEMP RATIO	FIXED TOY PRESS RATIO	FIXED TOY TEMP RATIO	OVERALL PERFORMANCE SUMMARY						
1	5.0000	0.991	1.007	0.924	1.000	SPACE DATA						
2	10.0000	0.989	1.006	0.925	1.000	FIXED INST.						
3	30.0000	1.001	1.004	0.925	1.000	Total Pressure Ratio = 1.3719						
4	50.0000	1.001	1.005	0.925	1.000	Polytropic Efficiency = 0.6802						
5	70.0000	1.004	1.004	0.924	1.000	Percent Design Speed = 99.9						
6	90.0000	0.997	1.005	0.925	1.000	Cor. Nozzle Weight Flow = 224.1						
7	99.0000	0.997	1.005	0.925	1.000	Discharge Valve Setting = 30.0						
PERFORMANCE PARAMETERS												
IGW DATA												
TRAV. INST.												
0.9984												
TE Check Flow/Noz.Flow = 1.0028												
Assumed TE Flow Coeff. = 0.9850												
LE Check Flow/Noz.Flow = 1.0077												
Assumed LE Flow Coeff. = 0.9900												

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

093070

ROTOR BLADE BOW - NASA TASK IVeR												
BLADE ELEMENT PERFORMANCE RESULTS												
POINT NUMBER 13 READING NUMBER 430 DATE 9/29/1970												
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	MN CHBR LN LE ANGLE	INCID ANG	INLET ABS VELOCITY	INLET ABS VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL	INLET BEL TANG VEL
1	65.46	60.31	61.28	4.16	4.16	470.01	460.58	865.58	58.63	58.63	1420.81	1458.81
2	63.72	60.25	60.25	3.47	3.47	704.33	3583.88	701.69	4.32	4.32	1278.83	1278.83
3	57.91	6.24	57.07	0.84	0.84	801.92	1509.46	601.90	3.38	3.38	1278.83	1278.83
4	54.40	6.45	53.90	0.50	0.50	813.49	1394.38	610.98	6.23	6.23	1327.52	1327.52
5	51.54	50.12	50.68	0.74	0.74	805.61	1283.53	704.47	54.70	54.70	890.70	890.70
6	48.28	50.98	48.56	0.30	0.30	790.37	1162.33	757.47	52.97	52.97	651.79	651.79
7	48.26	51.12	48.02	0.24	0.24	755.06	1103.33	717.90	54.01	54.01	804.61	804.61
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANGLE	REL YURN ANGLE	EXIT ABS VELOCITY	EXIT ABS VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT BEL TANG VEL
1	59.90	27.04	57.52	2.38	5.56	725.30	1268.31	643.85	328.49	328.49	1110.72	1110.72
2	57.26	23.41	57.18	0.08	6.46	775.91	1324.08	715.47	295.00	295.00	1127.73	1127.73
3	51.44	25.64	52.85	6.47	6.47	817.94	1162.87	737.35	353.83	353.83	924.85	924.85
4	43.47	28.13	46.18	2.60	6.93	860.35	1070.03	776.17	447.96	447.96	795.66	795.66
5	36.17	35.39	34.76	1.47	35.36	872.00	878.40	705.41	504.81	504.81	515.78	515.78
6	21.39	41.29	16.84	4.95	26.89	951.16	779.97	705.29	619.34	619.34	274.72	274.72
7	9.27	43.60	10.78	5.43	38.99	1083.33	805.02	733.08	766.26	766.26	1267.32	1267.32
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL	DIFFUSION	CM1						
1	1454.38	0.620	1.486	0.967	0.271	0.219						
2	1425.14	0.655	1.475	1.028	0.227	0.227						
3	1282.12	0.757	1.424	0.919	0.288	0.281						
4	1141.75	0.748	1.317	0.997	0.315	0.318						
5	998.01	0.740	1.212	0.848	0.417	0.371						
6	818.42	0.745	1.024	0.922	0.460	0.400						
7	790.60	0.707	1.034	1.073	0.421	0.217						
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY	LOSS COEFFICIENT	LOSS PARAM	POLY MOMENT EFFICIENCY	MEAS T. RISE	EXIT PRESS	EFFICIENCY	MEAS T. RISE	EXIT PRESS
1	1439.51	0.628	1.112	1.4310	0.185	0.032	0.6888	0.7493	0.6832	0.134	0.134	0.134
2	1407.72	0.684	1.168	1.4610	0.137	0.023	0.7493	0.7609	0.7609	0.139	0.139	0.139
3	1278.68	0.725	1.048	1.4320	0.143	0.026	0.7533	0.7649	0.7649	0.197	0.197	0.197
4	1150.62	0.746	0.955	1.7730	0.117	0.024	0.7405	0.7259	0.7259	0.250	0.250	0.250
5	1020.59	0.773	0.773	1.8648	0.136	0.028	0.7457	0.7256	0.7256	0.324	0.324	0.324
6	895.66	0.846	0.688	2.2460	0.151	0.031	0.7409	0.7507	0.7507	0.407	0.407	0.407
7	863.47	0.981	0.729	2.3470	0.187	0.039	0.7494	0.7304	0.7304	0.483	0.483	0.483
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY						
1	5.0000	1.357	1.448	1.369	1.441	STAGE DATA ROTOR DATA ROTOR DATA						
2	10.0000	1.387	1.428	1.399	1.435	FIXED INST. FIXED INST. TRAV. INST.						
3	30.0000	1.410	1.425	1.408	1.436	Total Pressure Ratio = 1.3719 1.4477 1.4674						
4	50.0000	1.444	1.428	1.444	1.436	Adiabatic Efficiency = 0.6657 0.7850 0.8632						
5	70.0000	1.492	1.439	1.475	1.445	Polytropic Efficiency = 0.6802 0.7959 0.8704						
6	90.0000	1.609	1.434	1.567	1.463	Percent Design Speed = 99.9 Discharge Valve Setting= 30.0						
7	95.0000	1.655	1.462	1.568	1.466	Cor..Nozzle Weight Flow= 224.1						
LE Check Flow/Noz.Flow = 1.0027 TE Check Flow/Noz.Flow = 0.9865												
Assumed LE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500												

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW = NASA TASK IV-B		POINT NUMBER 13		BLADE ELEMENT PERFORMANCE RESULTS		READING NUMBER 436		DATE 9/29/5976		
PARTIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE	INCID ANS	INCID ANS SUCT SURE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL
1	28.58	-10.89	39.47	-15.88	690.13	806.06	806.06	806.06	330.10	330.10
2	23.28	-13.49	39.04	-15.88	818.27	848.08	848.08	848.08	352.86	352.86
3	23.28	-13.49	39.80	-12.52	895.91	795.05	795.05	795.05	410.07	410.07
4	33.12	-17.09	40.86	-14.78	904.48	854.45	854.45	854.45	462.04	462.04
5	37.52	-21.22	42.22	-17.09	986.74	874.34	874.34	874.34	507.63	507.63
6	39.14	-23.62	42.76	-19.42	1129.68	867.65	867.65	867.65	706.00	706.00
PARTIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN TE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL
1	2.62	13.78	51.18	13.78	25.92	706.64	706.64	706.64	327.73	327.73
2	2.09	12.19	51.18	12.19	24.43	717.19	717.19	717.19	267.16	267.16
3	1.09	12.19	51.18	12.19	24.43	784.29	784.29	784.29	141.90	141.90
4	0.76	12.19	51.18	12.19	26.53	801.52	801.52	801.52	16.56	16.56
5	2.33	6.88	59.16	6.88	35.46	825.07	825.07	825.07	333.00	333.00
6	2.33	5.25	50.58	5.25	42.85	794.73	794.73	794.73	273.77	273.77
7	2.64	8.78	52.38	8.78	42.29	644.73	644.73	644.73	241.60	241.60
PARTIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	YGT PRESS LOSS PARAM	EFFICIENCY	POLY MOMEN RISEZ	MEAS T RISE	STAT PRESS RISE COEFF
1	1.595	0.658	1.153	1.528	0.236	0.071	0.4224	0.4224	0.071	0.071
2	1.729	0.686	1.092	1.548	0.097	0.031	0.2622	0.2622	0.031	0.031
3	1.801	0.705	1.007	1.6310	0.099	0.030	1.1219	1.1219	0.099	0.099
4	1.805	0.726	1.007	1.7428	0.118	0.034	0.7617	0.7617	0.118	0.118
5	1.886	0.764	1.016	1.8608	0.136	0.036	0.5311	0.5311	0.136	0.136
6	1.932	0.794	1.016	2.0510	0.218	0.053	0.0622	0.0622	0.218	0.218
7	1.932	0.779	1.016	2.0980	0.221	0.053	0.2264	0.2264	0.221	0.221
PARTIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	LOSS COEFFICIENT	YGT PRESS LOSS PARAM	EFFICIENCY	POLY MOMEN RISEZ	MEAS T RISE	STAT PRESS RISE COEFF
1	5.0000	1.008	0.996	1.080	0.236	0.071	0.4224	0.4224	0.071	0.071
2	10.0000	1.004	1.002	0.975	0.097	0.031	0.2622	0.2622	0.031	0.031
3	30.0000	1.004	1.016	0.971	0.099	0.030	1.1219	1.1219	0.099	0.099
4	50.0000	1.004	1.007	0.928	0.118	0.034	0.7617	0.7617	0.118	0.118
5	70.0000	1.004	1.007	0.952	0.136	0.036	0.5311	0.5311	0.136	0.136
6	90.0000	1.004	1.007	1.080	0.218	0.053	0.0622	0.0622	0.218	0.218
7	95.0000	1.004	0.992	0.882	0.221	0.053	0.2264	0.2264	0.221	0.221
OVERALL PERFORMANCE SUMMARY										
STAGE DATA. STATOR DATA STATOR DATA										
FIXED INST. FIXED INST. TRAV. INST.										
Total Pressure Ratio = 1.3719 0.9526 0.9587										
Polytropic Efficiency = 0.6802 0.8688 0.4005										
Percent Design Speed = 99.9 Discharge Valve Setting = 30.0										
Cor. Nozzle Weight Flow = 224.1										
LE Check Flow/Noz.Flow = 0.9865 TE Check Flow/Noz.Flow = 0.9588										
Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350										

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INLET GUIDE VANES & NASA TASK IV-9																	
BLADE ELEMENT PERFORMANCE RESULTS																	
POINY NUMBER 14 BRADING NUMBER 431 DATE 972911976																	
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LM LE ANGLE	INCID ANG	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	INLET AX YANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	EXIT AX YANG VEL
1	0.23	0.28	0.28	0.28	0.28	489.49	489.49	489.49	1.95	1.95	1.95	524.92	524.92	524.92	1.74	1.74	1.74
2	0.10	0.10	0.10	0.10	0.10	595.36	595.36	595.36	1.08	1.08	1.08	601.03	601.03	601.03	0.96	0.96	0.96
3	0.21	0.21	0.21	0.21	0.21	593.45	593.45	593.45	0.84	0.84	0.84	582.41	582.41	582.41	1.14	1.14	1.14
4	0.67	0.67	0.67	0.67	0.67	593.45	593.45	593.45	0.84	0.84	0.84	582.41	582.41	582.41	1.14	1.14	1.14
5	0.95	0.95	0.95	0.95	0.95	593.45	593.45	593.45	0.84	0.84	0.84	582.41	582.41	582.41	1.14	1.14	1.14
6	1.12	1.12	1.12	1.12	1.12	593.45	593.45	593.45	0.84	0.84	0.84	582.41	582.41	582.41	1.14	1.14	1.14
7	1.12	1.12	1.12	1.12	1.12	593.45	593.45	593.45	0.84	0.84	0.84	582.41	582.41	582.41	1.14	1.14	1.14
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LM TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	EXIT AX YANG VEL	DIFFUSION FACTOR	DIFFUSION FACTOR	DIFFUSION FACTOR	DIFFUSION FACTOR	DIFFUSION FACTOR	DIFFUSION FACTOR
1	0.66	0.66	0.66	0.66	0.66	577.48	577.48	577.48	4.70	4.70	4.70	0.184	0.184	0.184	0.184	0.184	0.184
2	1.05	1.05	1.05	1.05	1.05	637.19	637.19	637.19	1.19	1.19	1.19	0.177	0.177	0.177	0.177	0.177	0.177
3	1.73	1.73	1.73	1.73	1.73	667.30	667.30	667.30	2.21	2.21	2.21	0.135	0.135	0.135	0.135	0.135	0.135
4	0.92	0.92	0.92	0.92	0.92	677.93	677.93	677.93	1.83	1.83	1.83	0.133	0.133	0.133	0.133	0.133	0.133
5	0.48	0.48	0.48	0.48	0.48	656.68	656.68	656.68	1.46	1.46	1.46	0.102	0.102	0.102	0.102	0.102	0.102
6	0.78	0.78	0.78	0.78	0.78	604.68	604.68	604.68	1.17	1.17	1.17	0.001	0.001	0.001	0.001	0.001	0.001
7	0.27	0.27	0.27	0.27	0.27	570.86	570.86	570.86	0.48	0.48	0.48	0.043	0.043	0.043	0.043	0.043	0.043
RADIAL POSITION	ROTOR SPD AT INLET	ROTOR SPD AT EXIT	INLET REL MACH NO	EXIT REL MACH NO	AXIAL VFL RATIO	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM
1	0.447	0.447	0.447	0.447	0.447	0.072	0.021	0.072	0.021	0.072	0.021	0.072	0.021	0.072	0.021	0.072	0.021
2	0.481	0.481	0.481	0.481	0.481	0.079	0.030	0.079	0.030	0.079	0.030	0.079	0.030	0.079	0.030	0.079	0.030
3	0.540	0.540	0.540	0.540	0.540	0.084	0.003	0.084	0.003	0.084	0.003	0.084	0.003	0.084	0.003	0.084	0.003
4	0.585	0.585	0.585	0.585	0.585	-0.003	0.007	-0.003	0.007	-0.003	0.007	-0.003	0.007	-0.003	0.007	-0.003	0.007
5	0.551	0.551	0.551	0.551	0.551	-0.021	0.006	-0.021	0.006	-0.021	0.006	-0.021	0.006	-0.021	0.006	-0.021	0.006
6	0.548	0.548	0.548	0.548	0.548	0.018	0.006	0.018	0.006	0.018	0.006	0.018	0.006	0.018	0.006	0.018	0.006
7	0.537	0.537	0.537	0.537	0.537	0.016	0.005	0.016	0.005	0.016	0.005	0.016	0.005	0.016	0.005	0.016	0.005
RADIAL POSITION	ROTOR SPD AT INLET	ROTOR SPD AT EXIT	INLET REL MACH NO	EXIT REL MACH NO	AXIAL VFL RATIO	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM	TRAV LOSS TR V% PRESS COEFFICIENT	LOSS PARAM
1	0.529	0.529	0.529	0.529	0.529	0.072	0.021	0.072	0.021	0.072	0.021	0.072	0.021	0.072	0.021	0.072	0.021
2	0.564	0.564	0.564	0.564	0.564	0.079	0.030	0.079	0.030	0.079	0.030	0.079	0.030	0.079	0.030	0.079	0.030
3	0.619	0.619	0.619	0.619	0.619	0.084	0.003	0.084	0.003	0.084	0.003	0.084	0.003	0.084	0.003	0.084	0.003
4	0.629	0.629	0.629	0.629	0.629	-0.003	0.007	-0.003	0.007	-0.003	0.007	-0.003	0.007	-0.003	0.007	-0.003	0.007
5	0.614	0.614	0.614	0.614	0.614	-0.021	0.006	-0.021	0.006	-0.021	0.006	-0.021	0.006	-0.021	0.006	-0.021	0.006
6	0.559	0.559	0.559	0.559	0.559	0.018	0.006	0.018	0.006	0.018	0.006	0.018	0.006	0.018	0.006	0.018	0.006
7	0.524	0.524	0.524	0.524	0.524	0.016	0.005	0.016	0.005	0.016	0.005	0.016	0.005	0.016	0.005	0.016	0.005
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	PERFORMANCE PARAMETERS										
1	5.0000	0.991	1.007	0.995	1.000	Total Pressure Ratio =	1.6751	Total Pressure Ratio =	0.8377	Total Pressure Ratio =	0.9978						
2	10.0000	0.988	1.007	0.995	1.000	Polytropic Efficiency =	0.8377										
3	30.0000	0.999	1.005	0.998	1.000	Percent Design Speed =	99.9										
4	50.0000	1.001	1.004	0.995	1.000	Cor. Nozzle Weight Flow =	220.6										
5	70.0000	1.004	1.005	0.995	1.000	LE Check Flow/Noz.Flow =	1.0140										
6	90.0000	0.997	1.008	0.995	1.000	Assumed LE Flow Coeff. =	0.9900										
7	95.0000	0.997	1.004	0.995	1.000	Discharge Valve Settings=	9.0										

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

PARTIAL POSITION		REL INLET FLOW ANG		ABS INLET FLOW ANG		CHBR LN LE ANGLE		INLET ANR MN CHBR LN		INLET ABS VELOCITY		INLET REL VELOCITY		INLET AX VELOCITY		INLET ABS Y ANG VEL		INLET REL Y ANG VEL	
PARTIAL POSITION		REL INLET FLOW ANG		ABS INLET FLOW ANG		CHBR LN LE ANGLE		INLET ANR MN CHBR LN		INLET ABS VELOCITY		INLET REL VELOCITY		INLET AX VELOCITY		INLET ABS Y ANG VEL		INLET REL Y ANG VEL	
1	1	65.90	0.60	61.28	4.62	65.74	156.74	61.28	4.62	65.74	156.74	61.28	4.62	64.15	6.76	1446.57	1412.84	1412.84	1412.84
2	2	63.48	0.92	60.25	3.43	781.48	1377.38	60.25	3.43	781.48	1377.38	60.25	3.43	896.77	43.25	1412.84	1412.84	1412.84	1412.84
3	3	57.72	1.85	57.07	0.65	786.84	1491.53	57.07	0.65	786.84	1491.53	57.07	0.65	796.58	20.17	1261.12	1261.12	1261.12	1261.12
4	4	54.80	0.76	53.90	0.90	800.02	1384.76	53.90	0.90	800.02	1384.76	53.90	0.90	797.45	10.60	1138.33	1138.33	1138.33	1138.33
5	5	52.06	0.38	50.88	1.26	792.35	1377.50	50.88	1.26	792.35	1377.50	50.88	1.26	781.67	5.21	1082.59	1082.59	1082.59	1082.59
6	6	49.74	0.22	48.58	1.16	782.42	1352.62	48.58	1.16	782.42	1352.62	48.58	1.16	731.73	22.80	864.02	864.02	864.02	864.02
7	7	49.49	0.25	48.02	1.47	785.03	1398.97	48.02	1.47	785.03	1398.97	48.02	1.47	695.49	52.41	817.44	817.44	817.44	817.44
ROTOR BLADE ROW - NASA TASK IVeB																			
BLADE ELEMENT PERFORMANCE RESULTS																			
PARTIAL POSITION		REL YRN ANGLE		REL YRN ANGLE		REL DIV ANGLE		REL DIV ANGLE		EXIT ABS VELOCITY		EXIT REL VELOCITY		EXIT AX VELOCITY		EXIT ABS Y ANG VEL		EXIT REL Y ANG VEL	
PARTIAL POSITION		REL YRN ANGLE		REL YRN ANGLE		REL DIV ANGLE		REL DIV ANGLE		EXIT ABS VELOCITY		EXIT REL VELOCITY		EXIT AX VELOCITY		EXIT ABS Y ANG VEL		EXIT REL Y ANG VEL	
1	1	60.98	3.46	57.52	3.46	41.66	57.52	41.66	57.52	736.94	1302.54	736.94	1302.54	534.40	425.78	364.08	364.08	364.08	364.08
2	2	56.93	0.25	57.18	0.25	30.25	57.18	30.25	57.18	770.30	1335.73	770.30	1335.73	619.18	455.78	930.93	930.93	930.93	930.93
3	3	51.11	0.18	52.85	1.74	1.74	52.85	1.74	52.85	802.41	1004.57	802.41	1004.57	495.94	784.74	784.74	784.74	784.74	784.74
4	4	43.64	0.10	46.18	2.46	2.46	46.18	2.46	46.18	838.99	892.59	838.99	892.59	648.76	514.03	418.74	418.74	418.74	418.74
5	5	34.70	0.11	34.70	0.00	0.00	34.70	0.00	34.70	864.46	787.53	864.46	787.53	644.50	573.93	445.93	445.93	445.93	445.93
6	6	21.94	0.10	16.84	5.10	5.10	16.84	5.10	16.84	864.76	632.28	864.76	632.28	574.76	663.52	231.90	231.90	231.90	231.90
7	7	13.61	0.10	10.78	2.91	2.91	10.78	2.91	10.78	938.52	618.28	938.52	618.28	585.10	720.16	141.70	141.70	141.70	141.70
DIFFUSION																			
PARTIAL POSITION		ROTOR SPD AT EXIT		INLET REL MACH NO		EXIT REL MACH NO		POLY MOMEN RISE		EFFICIENCY		MEAS V RISE		POLY MOMEN RISE		MEAS V RISE		EFFICIENCY	
PARTIAL POSITION		ROTOR SPD AT EXIT		INLET REL MACH NO		EXIT REL MACH NO		POLY MOMEN RISE		EFFICIENCY		MEAS V RISE		POLY MOMEN RISE		MEAS V RISE		EFFICIENCY	
1	1	143.33	0.82	1.48	0.26	0.26	1.48	0.26	1.48	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
2	2	124.11	0.62	1.46	0.86	0.86	1.46	0.86	1.46	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
3	3	1281.29	0.75	1.40	0.72	0.72	1.40	0.72	1.40	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
4	4	1140.93	0.75	1.30	0.81	0.81	1.30	0.81	1.30	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
5	5	927.29	0.74	1.20	0.82	0.82	1.20	0.82	1.20	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
6	6	838.21	0.71	1.02	0.75	0.75	1.02	0.75	1.02	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
7	7	790.03	0.67	1.02	0.88	0.88	1.02	0.88	1.02	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
POLY MOMEN RISE																			
PARTIAL POSITION		ROTOR SPD AT EXIT		INLET REL MACH NO		EXIT REL MACH NO		POLY MOMEN RISE		EFFICIENCY		MEAS V RISE		POLY MOMEN RISE		MEAS V RISE		EFFICIENCY	
PARTIAL POSITION		ROTOR SPD AT EXIT		INLET REL MACH NO		EXIT REL MACH NO		POLY MOMEN RISE		EFFICIENCY		MEAS V RISE		POLY MOMEN RISE		MEAS V RISE		EFFICIENCY	
1	1	143.33	0.82	1.48	0.26	0.26	1.48	0.26	1.48	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
2	2	124.11	0.62	1.46	0.86	0.86	1.46	0.86	1.46	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
3	3	1281.29	0.75	1.40	0.72	0.72	1.40	0.72	1.40	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
4	4	1140.93	0.75	1.30	0.81	0.81	1.30	0.81	1.30	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
5	5	927.29	0.74	1.20	0.82	0.82	1.20	0.82	1.20	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
6	6	838.21	0.71	1.02	0.75	0.75	1.02	0.75	1.02	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
7	7	790.03	0.67	1.02	0.88	0.88	1.02	0.88	1.02	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
STAGE DATA ROTOR DATA ROTOR DATA																			
PARTIAL POSITION		PERCENT DIMENSION PRESS RATIO		TRAV TOT PRESS RATIO		FIXED TOT PRESS RATIO		FIXED TOT TRMP RATIO		PERFORMANCE PARAMETERS		TOTAL PRESSURE RATIO		ADIBATIC EFFICIENCY		POLYTROPIC EFFICIENCY		PERCENT DESIGN SPEED	
PARTIAL POSITION		PERCENT DIMENSION PRESS RATIO		TRAV TOT PRESS RATIO		FIXED TOT PRESS RATIO		FIXED TOT TRMP RATIO		PERFORMANCE PARAMETERS		TOTAL PRESSURE RATIO		ADIBATIC EFFICIENCY		POLYTROPIC EFFICIENCY		PERCENT DESIGN SPEED	
1	1	5.0000	1.700	1.700	1.725	1.725	1.725	1.225	1.225	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
2	2	30.0000	1.745	1.745	1.721	1.721	1.721	1.219	1.219	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
3	3	30.0000	1.705	1.705	1.725	1.725	1.725	1.199	1.199	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
4	4	50.0000	1.657	1.657	1.695	1.695	1.695	1.184	1.184	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
5	5	90.0000	1.701	1.701	1.662	1.662	1.662	1.174	1.174	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
6	6	90.0000	1.651	1.651	1.671	1.671	1.671	1.172	1.172	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
7	7	95.0000	1.733	1.733	1.622	1.622	1.622	1.175	1.175	0.1036	0.7488	0.1036	0.7488	0.7471	0.7471	0.7471	0.7471	0.7471	0.7471
DISCHARGE VALVE SETTINGS = 30.0																			
Cor. Nozzle Weight Flow = 224.1																			
LE Check Flow/Noz.Flow = 1.0027																			
Assumed LE Flow Coeff. = 0.9950																			
TE Check Flow/Noz.Flow = 0.9865																			
Assumed TE Flow Coeff. = 0.9500																			

093070

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

093070

STATOR BLADE ROW - NASA TASK IV-R		POINT NUMBER 14		BLADE ELEMENT PERFORMANCE RESULTS		READING NUMBER 431		DATE 9/29/1970			
PARTIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG	MN CHBR LN SUUCT SURF	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ARS TANG VEL	INLET REL YANG VEL
1	43.27	37.89	39.47	39.11	-1.75	43.05	696.53	507.16	507.16	477.43	477.43
2	37.36	39.01	39.01	-0.96		35.08	753.87	559.48	559.48	457.47	457.47
3	38.05	39.89	39.89	-1.34		35.08	802.65	611.99	611.99	494.57	494.57
4	38.46	39.36	39.36	-1.34		38.45	844.65	660.60	660.60	524.78	524.78
5	45.95	42.22	42.22	1.50		38.45	866.51	683.10	683.10	560.48	560.48
6	45.95	42.22	42.22	1.50		37.99	898.27	621.57	621.57	640.27	640.27
7	47.60	42.76	42.76	4.84		37.99	942.18	830.61	830.61	690.56	690.56
PARTIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS TANG VEL	EXIT REL YANG VEL	
1	0.22	11.18	11.18	11.35	43.05	560.79	560.79	560.79	27.17	27.17	
2	2.29	10.10	10.10	12.39	35.08	568.33	568.33	568.33	27.67	27.67	
3	2.45	8.67	8.67	11.32	35.08	630.48	630.48	630.48	27.00	27.00	
4	0.01	8.75	8.75	11.32	38.45	612.52	612.52	612.52	61.09	61.09	
5	1.37	5.10	5.10	10.47	37.99	627.72	627.72	627.72	15.00	15.00	
6	0.48	11.06	11.06	11.06	45.37	625.71	625.71	625.71	65.80	65.80	
7	0.69	12.38	12.38	8.67	51.29	577.98	577.98	577.98	53.08	53.08	
PARTIAL POSITION	ROTOR SPD AT INLET	INLET ARS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	YOT PRESS LOSS PARAM	ADH EFFICIENCY	POLY MOMEN RISE/MEAN Y RISE	STAT PRESS RISE COEFF		
1	0.580	0.580	0.580	1.106	0.145	0.048	1.0808	0.419	0.376		
2	0.642	0.642	0.642	0.988	0.070	0.023	0.8702	0.433	0.383		
3	0.690	0.690	0.690	0.927	0.042	0.013	0.8702	0.393	0.380		
4	0.733	0.733	0.733	0.917	0.024	0.007	0.9276	0.452	0.439		
5	0.778	0.778	0.778	0.917	0.032	0.008	0.8481	0.454	0.475		
6	0.788	0.788	0.788	1.004	0.031	0.008	0.8626	0.473	0.454		
7	0.828	0.828	0.828	0.911	0.078	0.019	0.6969	0.567	0.488		
PARTIAL POSITION	ROTOR SPD AT EXIT	EXIT ARS MACH NO	EXIT REL MACH NO	SOLIDITY PRESS RATIO	LOSS COEFFICIENT	YOT PRESS LOSS PARAM	ADH EFFICIENCY	POLY MOMEN RISE/MEAN Y RISE	STAT PRESS RISE COEFF		
1	0.463	0.463	0.463	1.528	0.145	0.048	1.0808	0.419	0.376		
2	0.472	0.472	0.472	1.548	0.070	0.023	0.8702	0.433	0.383		
3	0.518	0.518	0.518	1.610	0.042	0.013	0.9276	0.452	0.439		
4	0.518	0.518	0.518	1.720	0.024	0.007	0.9276	0.452	0.439		
5	0.533	0.533	0.533	1.888	0.032	0.008	0.8481	0.454	0.475		
6	0.531	0.531	0.531	2.058	0.031	0.008	0.8626	0.473	0.454		
7	0.488	0.488	0.488	2.098	0.078	0.019	0.6969	0.567	0.488		
PARTIAL POSITION	PERCENT IMMERGION	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY					
1	5.0000	1.006	0.995	0.974	1.080	STAGE DATA STATOR DATA STATOR DATA					
2	10.0000	1.004	1.018	0.988	1.080	FIXED INST. FIXED INST. TRAV. INST.					
3	30.0000	1.001	1.008	0.989	1.080	1.6751 0.9865 0.9874					
4	50.0000	0.987	1.002	0.988	1.080	0.8377 0.9744 0.8106					
5	70.0000	0.989	1.008	0.989	1.080	Discharge Valve Setting=9.0					
6	90.0000	0.974	1.005	0.998	1.080	IE Check Flow/Noz.Flow = 0.9872					
7	95.0000	0.916	0.998	0.974	1.080	Assumed IE Flow Coeff. = 0.9500					
						TE Check Flow/Noz.Flow = 0.9745					
						Assumed TE Flow Coeff. = 0.9350					

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TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

INLET GUIDE VANES - NASA TASK IV*8																								
BLADE ELEMENT PERFORMANCE RESULTS										POINT NUMBER 15														
READING NUMBER 432										DATE 9/29/1970														
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INLET LN ANGLE	INCID ANG	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	EXIT LN ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	-0.50	-0.71	0.	-0.50	418.02	449.00	418.02	449.00	418.02	449.00	418.02	1	0.28	0.12	0.	0.28	0.12	0.	501.64	496.98	501.10	496.98	501.10	496.98
2	-0.38	-0.71	0.	-0.38	418.02	449.00	418.02	449.00	418.02	449.00	418.02	3	0.28	0.12	0.	0.28	0.12	0.	509.41	496.98	509.19	496.98	509.19	496.98
3	-0.38	-0.71	0.	-0.38	418.02	449.00	418.02	449.00	418.02	449.00	418.02	4	0.28	0.12	0.	0.28	0.12	0.	509.41	496.98	509.19	496.98	509.19	496.98
4	-0.38	-0.71	0.	-0.38	418.02	449.00	418.02	449.00	418.02	449.00	418.02	5	0.28	0.12	0.	0.28	0.12	0.	509.41	496.98	509.19	496.98	509.19	496.98
5	-0.38	-0.71	0.	-0.38	418.02	449.00	418.02	449.00	418.02	449.00	418.02	6	0.28	0.12	0.	0.28	0.12	0.	509.41	496.98	509.19	496.98	509.19	496.98
6	-0.38	-0.71	0.	-0.38	418.02	449.00	418.02	449.00	418.02	449.00	418.02	7	0.28	0.12	0.	0.28	0.12	0.	509.41	496.98	509.19	496.98	509.19	496.98
7	-0.38	-0.71	0.	-0.38	418.02	449.00	418.02	449.00	418.02	449.00	418.02								486.125	485.77	485.77	485.77	485.77	485.77
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	EXIT LN ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	EXIT LN ANGLE	DEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	-4.00	-4.00	0.	-4.00	3.50	3.50	467.99	466.81	466.81	466.81	466.81	1	-2.50	-2.50	0.	-2.50	1.79	503.47	502.98	502.98	502.98	502.98	502.98	
2	-0.09	-0.09	0.	-0.09	-0.29	-0.29	565.77	565.49	565.49	565.49	565.49	3	-3.88	-3.88	0.	-3.88	3.68	571.04	568.02	568.02	568.02	568.02	568.02	
3	-7.13	-7.13	0.	-7.13	7.41	7.41	569.38	569.83	569.83	569.83	569.83	4	-6.52	-6.52	0.	-6.52	7.04	537.67	520.87	520.87	520.87	520.87	520.87	
4	-6.40	-6.40	0.	-6.40	7.39	7.39	508.37	487.85	487.85	487.85	487.85	5	-6.40	-6.40	0.	-6.40	7.39	508.37	487.85	487.85	487.85	487.85	487.85	
6	-6.40	-6.40	0.	-6.40	7.39	7.39	508.37	487.85	487.85	487.85	487.85	7	-6.40	-6.40	0.	-6.40	7.39	508.37	487.85	487.85	487.85	487.85	487.85	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL	TRAV LOSS	TR IL PRESS	RATIO COEFFICIENT	LGSS PARAM	DIFFUSION	CH1	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY	PERCENT DIMENSION	TRAV TOT	TEMP RATIO	FIXED TOT	TRAV TOT	TEMP RATIO	FIXED TOT	TEMP RATIO	PERCENT DIMENSION	
1	0.375	1.130	0.050	1.130	0.131	0.050	0.144	0.055	0.106	0.389	0.424	1.3090	1.3090	1.014	5,000	0.988	0.996	1.000	0.988	0.996	1.000	0.988	0.996	
2	0.409	1.144	0.055	1.144	0.144	0.055	0.144	0.055	0.107	0.373	0.457	1.3170	1.3170	1.014	10,000	0.984	0.997	1.000	0.984	0.997	1.000	0.984	0.997	
3	0.468	1.166	0.054	1.166	0.166	0.054	0.166	0.054	0.108	0.263	0.518	1.3610	1.3610	1.008	30,000	0.992	0.997	1.000	0.992	0.997	1.000	0.992	0.997	
4	0.468	1.166	0.054	1.166	0.166	0.054	0.166	0.054	0.108	0.263	0.523	1.4190	1.4190	1.008	50,000	0.995	0.997	1.000	0.995	0.997	1.000	0.995	0.997	
5	0.458	1.117	0.036	1.117	0.036	0.036	0.036	0.036	0.094	0.279	0.455	1.048	1.048	1.004	70,000	0.999	0.996	1.000	0.999	0.996	1.000	0.999	0.996	
6	0.455	1.048	0.020	1.048	0.020	0.020	0.020	0.020	0.040	0.181	0.444	1.004	1.004	1.003	90,000	0.997	0.997	1.000	0.997	0.997	1.000	0.997	0.997	
7	0.444	1.004	0.023	1.004	0.023	0.023	0.023	0.023	0.007	0.109	0.444	1.004	1.004	1.004	95,000	0.997	0.997	1.000	0.997	0.997	1.000	0.997	0.997	
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT	TEMP RATIO	FIXED TOT	TRAV TOT	TEMP RATIO	FIXED TOT	TEMP RATIO	PERCENT DIMENSION	TRAV TOT	TEMP RATIO	FIXED TOT	TEMP RATIO	PERCENT DIMENSION	TRAV TOT	TEMP RATIO	FIXED TOT	TEMP RATIO	PERCENT DIMENSION	TRAV TOT	TEMP RATIO	FIXED TOT	TEMP RATIO	
1	5,000	0.988	0.996	1.000	0.988	0.996	1.000	0.988	5,000	0.988	0.996	1.000	0.988	10,000	0.984	0.997	1.000	0.984	10,000	0.984	0.997	1.000	0.984	
2	10,000	0.984	0.997	1.000	0.984	0.997	1.000	0.984	30,000	0.992	0.997	1.000	0.992	50,000	0.995	0.997	1.000	0.995	50,000	0.995	0.997	1.000	0.995	
3	30,000	0.992	0.997	1.000	0.992	0.997	1.000	0.992	70,000	0.999	0.996	1.000	0.999	90,000	0.997	0.997	1.000	0.997	90,000	0.997	0.997	1.000	0.997	
4	50,000	0.995	0.997	1.000	0.995	0.997	1.000	0.995	95,000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	
5	70,000	0.999	0.996	1.000	0.999	0.996	1.000	0.999	90,000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	
6	90,000	0.997	0.997	1.000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	
7	95,000	0.997	0.997	1.000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	95,000	0.997	0.997	1.000	0.997	

OVERALL PERFORMANCE SUMMARY

STAGH DATA	IGV DATA
FIXED INST.	TRAV, INST.
Total Pressure Ratio =	1.7916
Polytropic Efficiency =	0.7584
Percent Design Speed =	100.0
Cor. Nozzle Weight Flow =	192.6
TE Check Flow/Noz. Flow =	1.0448
Assumed TE Flow Coeff. =	0.9900
TE Check Flow/Noz. Flow =	1.0439
Assumed TE Flow Coeff. =	0.9950
Discharge Valve Setting =	4.0

100170 TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IVeR		BLADE ELEMENT PERFORMANCE RESULTS		POINT NUMBER 15		READING NUMBER 32		DATE 9/29/1970			
RACIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	MN CMBR LN ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	2	70.95	33.67	61.28	8.67	518.19	374.96	513.74	32.96	1487.63	
3	4	51.95	-21.26	60.25	8.60	562.43	352.81	559.90	22.12	1447.54	
5	6	63.19	-0.08	57.07	6.12	648.58	437.95	648.157	-0.90	1283.37	
7	8	61.36	3.35	53.90	7.46	647.27	434.04	644.16	37.67	1179.66	
9	10	54.94	-5.95	50.80	8.14	653.52	424.78	641.35	-66.84	1055.05	
11	12	52.20	-5.21	48.58	6.62	650.76	410.75	622.54	-56.80	895.78	
13	14	54.42	-4.54	48.02	6.40	632.59	404.22	599.85	-47.68	838.44	
RACIAL POSITION		REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	2	51.16	56.61	57.52	0.64	12.79	837.58	873.78	698.39	741.41	
3	4	54.42	49.98	57.18	-2.76	14.43	846.82	939.64	647.65	760.36	
5	6	47.02	48.53	52.85	-5.83	16.17	876.09	851.00	656.40	622.53	
7	8	42.26	51.20	46.10	-3.84	19.10	853.67	722.85	665.03	485.83	
9	10	34.84	52.62	34.70	0.14	24.10	841.07	623.62	666.40	354.40	
11	12	21.19	52.66	16.84	4.35	34.01	864.23	527.59	483.88	187.57	
13	14	13.77	56.12	10.70	3.07	40.64	900.20	525.91	497.44	121.95	
RACIAL POSITION		ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	AUX EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF	
1	2	1454.67	0.471	1.431	0.896	0.333	0.061	0.6907	0.7191	0.318	
3	4	1423.42	0.513	1.417	0.971	0.311	0.062	0.7041	0.7306	0.331	
5	6	1242.47	0.599	1.327	0.694	0.178	0.038	0.8231	0.8384	0.382	
7	8	1141.98	0.598	1.242	0.830	0.171	0.036	0.8319	0.8453	0.426	
9	10	894.21	0.505	1.155	0.790	0.133	0.028	0.8708	0.8806	0.486	
11	12	833.99	0.602	1.024	0.777	0.211	0.044	0.8221	0.8345	0.614	
13	14	793.76	0.584	0.969	0.829	0.230	0.048	0.8214	0.8340	0.664	
RACIAL POSITION		ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	AUX EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF	
1	2	1439.80	0.675	0.704	1.4310	0.311	0.061	0.6907	0.7191	0.318	
3	4	1434.01	0.702	0.776	1.4610	0.311	0.062	0.7041	0.7306	0.331	
5	6	1274.94	0.744	0.723	1.6120	0.178	0.038	0.8231	0.8384	0.382	
7	8	1157.86	0.730	0.618	1.7730	0.171	0.036	0.8319	0.8453	0.426	
9	10	1023.80	0.725	0.537	1.9640	0.133	0.028	0.8708	0.8806	0.486	
11	12	895.84	0.749	0.459	2.2480	0.211	0.044	0.8221	0.8345	0.614	
13	14	862.65	0.782	0.452	2.3470	0.230	0.048	0.8214	0.8340	0.664	
RACIAL POSITION		PERCENT DILUTION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	AUX EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF
1	2	5.0000	2.026	2.004	1.318	0.311	0.061	0.6907	0.7191	0.318	
3	4	10.0000	2.029	1.965	1.302	0.311	0.062	0.7041	0.7306	0.331	
5	6	30.0000	1.846	1.904	1.246	0.178	0.038	0.8231	0.8384	0.382	
7	8	50.0000	1.865	1.814	1.223	0.171	0.036	0.8319	0.8453	0.426	
9	10	70.0000	1.802	1.752	1.200	0.133	0.028	0.8708	0.8806	0.486	
11	12	90.0000	1.796	1.676	1.194	0.211	0.044	0.8221	0.8345	0.614	
13	14	95.0000	1.842	1.679	1.194	0.230	0.048	0.8214	0.8340	0.664	

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.7916 1.8588 1.9033
 0.7379 0.7687 0.8092
 0.7594 0.8063 0.9079

PERFORMANCE PARAMETERS
 Total Pressure Ratio =
 Adiabatic Efficiency =
 Polytropic Efficiency =
 Percent Design Speed = 100.0 Discharge Valve Setting= 4.0
 Cor. Nozzle Weight Flow = 192.6

IE Check Flow/Noz.Flow = 1.0438 TE Check Flow/Noz.Flow = 1.0424
 Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

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TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV#H		BLADE ELEMENT PERFORMANCE RESULTS										
		POINT NUMBER	15	READING NUMBER	432	DATE	9/29/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	MN CMBR LN	INCID ANG SUCT SURF	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	EXIT AX VELOCITY	EXIT ABS VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	57.99	57.99	39.47	18.52	827.19	438.52	701.39	528.07	650.04	650.04		
2	50.91	50.91	39.11	11.80	837.52	581.19	654.60	581.19	654.60	654.60		
3	48.40	48.40	39.01	9.39	853.22	543.10	657.20	543.10	657.20	657.20		
4	50.43	50.43	39.80	10.63	844.32	535.04	650.89	535.04	650.89	650.89		
5	50.57	50.57	40.86	9.71	862.86	519.64	683.45	519.64	683.45	683.45		
6	52.75	52.75	42.22	10.53	893.01	532.54	710.26	532.54	710.26	710.26		
7	53.14	53.14	42.76	10.38								
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	BEV ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	-1.95	-1.95	11.13	9.18	59.94	657.27	656.88	656.88	656.88	-22.37	-22.37	
2	-1.96	-1.96	10.10	8.14	52.87	636.59	636.20	636.20	636.20	-21.77	-21.77	
3	-3.18	-3.18	8.87	5.69	51.58	582.71	581.66	581.66	581.66	-32.36	-32.36	
4	-6.45	-6.45	8.75	2.30	56.88	509.62	506.03	506.03	506.03	-57.25	-57.25	
5	-9.10	-9.10	10.58	6.19	53.49	421.60	420.38	420.38	420.38	-21.40	-21.40	
6	-11.26	-11.26	10.58	9.32	54.01	284.03	283.13	283.13	283.13	-6.22	-6.22	
7	-1.72	-1.72	12.36	10.64	54.86	253.28	252.28	252.28	252.28	-7.57	-7.57	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR							
1	0.665	0.665	1.498	0.493	0.159							
2	0.694	0.694	1.205	0.499	0.1223							
3	0.743	0.743	1.001	0.574	0.1340							
4	0.730	0.730	0.932	0.642	0.1427							
5	0.728	0.728	0.786	0.710	0.1509							
6	0.748	0.748	0.745	0.862	0.1542							
7	0.775	0.775	0.474	0.1904	0.1519							
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADP EFFICIENCY	POLY MOMEN RISE/STAY PRESS EFFICIENCY	MEAS T RISE	COEFF		
1	0.534	0.534	1.5230	0.177	0.177	0.038	0.4789	0.4789	0.145	0.145		
2	0.518	0.518	1.5440	0.144	0.144	0.047	0.5360	0.5360	0.203	0.203		
3	0.479	0.479	1.6310	0.123	0.123	0.038	0.6167	0.6167	0.311	0.311		
4	0.421	0.421	1.7420	0.097	0.097	0.028	0.6714	0.6714	0.396	0.396		
5	0.350	0.350	1.8800	0.071	0.071	0.019	0.8688	0.8688	0.477	0.477		
6	0.235	0.235	2.0510	0.045	0.045	0.011	0.6198	0.6198	0.509	0.509		
7	0.209	0.209	2.0980	0.052	0.052	0.012	0.5784	0.5784	0.484	0.484		
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	OVERALL PERFORMANCE SUMMARY						
1	5.0000	0.948	0.952	0.955	1.000	STAGE DATA STATOR DATA STATOR DATA						
2	10.0000	0.938	0.997	0.960	1.000	FIXED INST. FIXED INST. TRAV. INST.						
3	30.0000	0.923	1.003	0.961	1.000	Total Pressure Ratio = 1.7916 0.9672 0.9847						
4	50.0000	0.926	1.004	0.970	1.000	Polytropic Efficiency = 0.7584 0.9462 0.6316						
5	70.0000	0.919	1.002	0.978	1.000	Percent Design Speed = 100.0 Discharge Valve Setting = 4.0						
6	90.0000	0.881	0.999	0.985	1.000	Cor. Nozzle Weight Flow = 192.6						
7	95.0000	0.856	0.998	0.981	1.000	IE Check Flow/Noz.Flow = 1.0424 TE Check Flow/Noz.Flow = 0.0003						
						Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9550						

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TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROM - NASA TASK IV-B

BLADE ELEMENT PERFORMANCE RESULTS
POINT NUMBER 6 READING NUMBER 543 DATE 10/ 6/1970

RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	65.01	-0.77	61.28	3.73	686.88	1616.70	682.59	-9.15	1463.56
2	63.91	-0.89	60.25	3.66	705.02	1600.26	703.50	-10.96	1436.13
3	58.38	-1.31	57.07	1.31	801.04	1527.36	800.82	-18.34	1300.58
4	55.26	-1.03	53.90	1.36	804.48	1408.45	801.83	-14.60	1156.18
5	51.99	-0.80	50.80	1.19	799.30	1287.19	788.47	-10.98	1009.00
6	49.05	-2.14	48.58	0.47	783.81	1168.38	752.20	-28.08	866.92
7	49.14	-2.29	48.02	1.12	745.44	107.03	708.56	-28.50	818.92

RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	59.60	26.51	57.52	2.08	5.41	732.66	1292.55	553.36	325.93	1113.61
2	57.45	21.02	57.18	0.27	6.48	775.10	1342.35	721.81	277.27	1130.49
3	51.49	24.94	52.85	-1.36	6.89	849.18	1192.81	742.69	345.41	933.30
4	44.75	27.19	46.10	-1.35	10.50	860.26	1077.13	764.45	392.75	757.90
5	38.25	34.98	34.70	3.55	13.75	841.66	877.74	685.98	479.92	540.70
6	21.10	38.36	16.84	4.26	27.95	984.30	832.12	760.73	602.15	293.53
7	14.51	41.70	10.70	3.81	34.63	1020.76	795.92	750.56	668.41	194.08

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHI
1	1454.41	0.638	1.501	0.958	0.273	0.229
2	1425.17	0.656	1.487	1.026	0.222	0.227
3	1282.24	0.755	1.439	0.927	0.303	0.278
4	1141.78	0.758	1.327	0.953	0.317	0.315
5	998.03	0.754	1.214	0.870	0.416	0.381
6	838.84	0.736	1.098	1.011	0.411	0.363
7	790.62	0.697	1.035	1.059	0.421	0.338

RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	LOSS COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	ADD EFFICIENCY	POLY WOMEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF
1	1439.54	0.632	1.315	1.4310	0.202	0.036	0.6413	0.6566	0.141
2	1407.76	0.682	1.182	1.4610	0.127	0.023	0.7650	0.7761	0.159
3	1278.71	0.725	1.056	1.6120	0.143	0.028	0.7570	0.7669	0.193
4	1150.65	0.767	0.960	1.7730	0.138	0.028	0.7866	0.7973	0.246
5	1020.62	0.744	0.775	1.9640	0.138	0.027	0.8163	0.8264	0.332
6	895.68	0.882	0.745	2.2480	0.173	0.036	0.8199	0.8310	0.370
7	862.49	0.913	0.712	2.3970	0.192	0.040	0.8162	0.8275	0.376

RADIAL POSITION	PERCENT THROUGH	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	STAGE DATA	ROTOR DATA	ROTOR DATA
1	5.0000	1.370	1.158	1.363	1.145	FIXED INST.	FIXED INST.	TRAV. INST.
2	10.0000	1.392	1.122	1.407	1.134	Total Pressure Ratio =	1.3834	1.4542
3	30.0000	1.418	1.124	1.426	1.141	Adiabatic Efficiency =	0.6684	0.7769
4	50.0000	1.474	1.120	1.442	1.140	Polytropic Efficiency =	0.6832	0.7884
5	70.0000	1.474	1.137	1.487	1.147	Percent Design Speed =	99.9	Discharge Valve Setting= 30.0
6	90.0000	1.640	1.147	1.571	1.168	Cor. Nozzle Weight Flow=	236.2	
7	95.0000	1.695	1.162	1.568	1.168	TE Check Flow/Noz.Flow =	0.9891	0.9873
						Assumed IE Flow Coeff. =	0.9650	Assumed TE Flow Coeff. = 0.9500

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STATOR BLADE ROW - NASA TASK IV-8		POINT NUMBER 8		BLADE ELEMENT PERFORMANCE RESULTS		READING NUMBER 543		DATE 10/ 6/1970		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	28.04	21.86	39.47	-11.43	29.92	696.38	747.47	614.64	327.33	278.29
2	24.83	26.38	39.11	-17.25	21.48	820.56	874.80	693.71	344.46	344.46
3	32.66	34.21	39.80	-13.42	24.69	871.85	1043.15	744.43	368.13	368.13
4	37.62		40.86	-8.20	26.69	1060.92		782.51	468.60	468.60
5			42.22	-8.01	35.19			731.13	581.05	581.05
6			42.76	-5.14	40.49			854.70	640.94	640.94
7					43.27			831.78		

RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	-0.88	0.38	-11.13	10.25	28.92	727.22	727.13	727.13	-11.18	-11.18
2	0.18	-0.31	-10.10	10.48	21.48	730.32	730.29	730.29	4.86	4.86
3	-0.31	-2.53	-8.87	8.05	24.69	788.95	788.72	788.72	2.42	2.42
4	-6.29	-5.66	-8.75	8.44	26.69	813.94	813.34	813.34	-4.39	-4.39
5			-10.58	6.57	35.19	851.03	848.83	848.83	-37.54	-37.54
6			-12.36	4.29	40.49	849.41	841.86	841.86	-92.73	-92.73
7				6.70	43.27	724.72	718.68	718.68	-71.18	-71.18

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ABB EFFICIENCY	POLY MOMEN RISE/ RISE	STAT PRESS RISE COEFF
1	0.598	0.656	0.727	1.183	1.5230	0.1248	0.081	0.8514	0.034	-0.083
2	0.656	0.727	1.060	1.053	1.5440	0.117	0.038	0.9148	0.067	0.067
3	0.727	0.773	1.161	1.039	1.6310	0.115	0.034	0.9245	0.105	0.105
4	0.773	0.824	1.285	1.161	1.7420	0.141	0.033	1.4227	0.069	0.069
5	0.824	0.926	1.364	0.985	1.8800	0.210	0.051	0.1193	0.032	0.032
6	0.926			0.864	2.0510	0.246	0.058	-0.0335	-0.013	-0.013
7					2.0980					

RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO
1	9.0000	1.004	0.985	0.947	1.000	1.000
2	10.0000	0.998	0.994	0.971	1.000	1.000
3	30.0000	0.998	1.007	0.967	1.000	1.000
4	50.0000	0.990	1.011	0.961	1.000	1.000
5	70.0000	1.030	1.009	0.954	1.000	1.000
6	90.0000	0.833	1.001	0.904	1.000	1.000
7	99.0000	0.716	0.990	0.883	1.000	1.000

DIFFUSION FACTOR	CH1
0.115	-0.092
0.141	0.038
0.166	0.076
0.198	0.120
0.177	0.079
0.341	0.039
0.474	-0.017

STAGE DATA	STATOR DATA	STATOR DATA
FIXED INST. FIXED INST.	0.9513	0.9701
Total Pressure Ratio =	1.3834	0.8666
Polytropic Efficiency =	0.6832	0.3820
Percent Design Speed =	99.9	Discharge Valve Setting= 30.0
Cor. Nozzle Weight Flow=	226.2	

OVERALL PERFORMANCE SUMMARY
LE Check Flow/Noz.Flow = 0.9873
TE Check Flow/Noz.Flow = 0.9767
Assumed LE Flow Coeff. = 0.9500
Assumed TE Flow Coeff. = 0.9350

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV-B		BLADE ELEMENT PERFORMANCE RESULTS										
POINT NUMBER 13		READING NUMBER 548										
		DATE 10/ 6/1970										
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN	INCID ANG	HN CHBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL		
1	64.47	-0.85	61.28	3.19	704.29	704.29	699.58	699.58	-10.36	1454.69		
2	64.17	-0.65	60.25	3.92	696.44	696.44	693.24	693.80	-7.89	1432.98		
3	58.41	-0.98	57.07	1.34	797.02	797.02	792.22	796.89	-13.61	1295.79		
4	55.35	-0.79	53.90	1.45	799.18	799.18	792.61	796.60	-11.00	1192.71		
5	52.40	-1.20	50.80	1.60	792.09	792.09	786.90	781.27	-16.41	1014.38		
6	49.34	-2.25	48.58	0.96	771.27	771.27	760.66	740.12	-29.04	867.83		
7	50.36	-3.75	48.02	2.34	729.68	729.68	718.71	692.54	-45.40	835.98		
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN	REL DEV ANG	TE ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	61.88	41.85	57.52	4.36	2.59	2.59	700.10	1104.79	520.23	466.02	973.45	
2	57.62	36.06	57.16	0.44	6.54	6.54	696.83	1141.28	610.58	444.84	963.04	
3	51.15	37.54	52.69	-1.70	7.26	7.26	802.35	1014.21	636.16	488.82	799.82	
4	44.20	38.45	46.10	-1.90	11.16	11.16	832.37	909.06	517.35	517.25	633.33	
5	36.12	41.47	34.70	1.42	16.27	16.27	847.83	787.02	632.43	558.99	481.58	
6	24.71	45.59	18.84	7.87	24.83	24.83	874.56	678.74	604.83	617.33	278.30	
7	13.76	48.74	10.70	3.09	36.97	36.97	955.73	658.16	622.69	709.65	152.80	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	COEFFICIENT	LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/ RISE COEFF	STAT PRESS
1	1454.33	0.655	1.512	0.744	1.4310	0.221	0.036	0.7240	0.7435	0.287	0.410	
2	1425.09	0.647	1.481	0.780	1.4610	0.073	0.033	0.9112	0.9187	0.287	0.409	
3	1282.17	0.750	1.432	0.798	1.6120	0.133	0.026	0.8349	0.8470	0.352	0.459	
4	1141.72	0.792	1.320	0.818	1.7730	0.134	0.027	0.8394	0.8506	0.416	0.458	
5	997.97	0.745	1.210	0.809	1.8640	0.094	0.019	0.8927	0.9001	0.492	0.503	
6	838.79	0.725	1.091	0.817	2.2480	0.130	0.026	0.8723	0.8809	0.565	0.555	
7	790.58	0.682	1.037	0.899	2.3470	0.134	0.028	0.8796	0.8880	0.541	0.503	
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
1	5.0000	1.683	1.229	1.686	1.223	0.221	0.036	0.7240	0.7435	0.287	0.410	0.287
2	16.0000	1.735	1.187	1.876	1.216	0.073	0.033	0.9112	0.9187	0.352	0.409	0.352
3	30.0000	1.723	1.179	1.720	1.201	0.133	0.026	0.8349	0.8470	0.416	0.458	0.416
4	50.0000	1.720	1.167	1.671	1.188	0.094	0.019	0.8927	0.9001	0.492	0.503	0.492
5	70.0000	1.709	1.160	1.655	1.174	0.130	0.026	0.8723	0.8809	0.565	0.555	0.565
6	90.0000	1.694	1.161	1.642	1.175	0.134	0.028	0.8796	0.8880	0.541	0.503	0.541
7	98.0000	1.780	1.178	1.665	1.179							

OVERALL PERFORMANCE SUMMARY

STAGE DATA	ROTOR DATA	ROTOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.
Total Pressure Ratio =	1.6762	1.6972
Adiabatic Efficiency =	0.8217	0.8430
Polytropic Efficiency =	0.8341	0.8543
Percent Design Speed =	99.9	Discharge Valve Setting = 9.0
Cor. Nozzle Weight Flow =	221.5	

LE Check Flow/Noz.Flow = 1.0091
 Assumed LE Flow Coeff. = 0.9950
 TE Check Flow/Noz.Flow = 0.9909
 Assumed TE Flow Coeff. = 0.9520

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TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW - NASA TASK IV-8														
		BLADE ELEMENT PERFORMANCE RESULTS														
		POINT NUMBER 13						DATE 10/ 6/1970								
		READING NUMBER 548														
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG HN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	
1	37.05	43.45	39.47	3.98	680.56	494.08	591.15	468.02	468.02	468.02	740.71	554.45	554.45	-9.34		
2	37.41	37.41	39.01	-1.60	802.63	637.36	637.36	487.48	487.48	487.48	838.39	564.52	564.52	9.21		
3	39.17	37.62	39.80	-2.18	838.39	663.29	663.29	511.16	511.16	511.16	867.05	633.56	633.56	16.32		
4	42.24	42.24	42.22	0.02	892.74	656.00	656.00	545.81	545.81	545.81	965.12	635.08	635.08	2.08		
5	45.30	45.30	42.76	2.54	965.12	673.35	673.35	680.49	680.49	680.49		621.41	621.41	0.28		
6																
7																
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	TOT LOSS PARAM	ABB EFFICIENCY	POLY WOMEN MEAS T RISE	STAT PRESS RISE COEFF	CH1	
1	-0.97	0.93	-11.13	10.16	44.41	554.53	554.53	554.45	-9.34		0.052	1.0255	0.8119	0.320	0.337	
2	1.48	0.19	-10.10	11.03	36.12	564.61	564.61	564.52	9.21		0.022	0.8119	0.8119	0.323	0.344	
3	0.01	0.05	-8.75	10.35	35.93	631.95	631.95	631.58	16.32		0.010	0.9359	0.9359	0.332	0.358	
4	0.05	0.05	-9.10	8.94	37.43	634.02	634.02	633.56	2.08		0.005	0.9228	0.9228	0.366	0.396	
5	-2.09	0.851	-12.36	10.63	42.19	623.83	623.83	621.41	0.28		0.018	0.8597	0.8597	0.405	0.429	
6																
7																
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEO RATIO	SOLIDITY	LOSS COEFFICIENT	FIXED TOT TEMP RATIO	TRAY TOT PRESS RATIO	FIXED TOT PRESS RATIO	TRAY TOT TEMP RATIO	PERCENT INCREASE	PERFORMANCE PARAMETERS	TOTAL PRESSURE RATIO	POLYTROPIC EFFICIENCY	PERCENT DESIGN SPEED	COR. NOZZLE WEIGHT FLOW
1	0.566	0.458	0.470	1.122	1.5230	0.157	0.970	0.990	0.970	0.970	5.0000	ABB EFFICIENCY	1.6762	0.9876	99.9	221.5
2	0.631	0.470	0.470	0.955	1.5440	0.067	0.984	1.011	0.984	1.000	10.0000	TOT LOSS PARAM	0.8341	0.9764	99.9	221.5
3	0.691	0.533	0.533	0.991	1.6310	0.032	0.991	1.006	0.991	1.000	30.0000	POLY WOMEN MEAS T RISE	0.9876	0.9827	99.9	221.5
4	0.728	0.533	0.533	0.955	1.7420	0.017	0.995	1.005	0.995	1.000	50.0000	EFFICIENCY	0.9876	0.9827	99.9	221.5
5	0.758	0.542	0.542	0.942	1.6800	0.027	0.991	1.003	0.991	1.000	70.0000	DISCHARGE VALVE SETTING	0.9876	0.9827	99.9	221.5
6	0.785	0.530	0.530	0.947	2.0510	0.043	0.985	1.007	0.985	1.000	90.0000	DISCHARGE VALVE SETTING	0.9876	0.9827	99.9	221.5
7	0.851	0.463	0.463	0.811	2.0980	0.075	0.985	1.007	0.985	1.000	99.0000	DISCHARGE VALVE SETTING	0.9876	0.9827	99.9	221.5

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST, FIXED INST, TRAV, INST.
 1.6762 0.9876 0.9827
 0.8341 0.9764 0.8002
 Discharge Valve Setting=9.0
 I.E. Check Flow/Noz.Flow = 0.9979 I.E. Check Flow/Noz.Flow = 0.9772
 Assumed I.E. Flow Coeff. = 0.9500 Assumed I.E. Flow Coeff. = 0.9350

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

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ROTOR BLADE ROW - NASA TASK IV-B

BLADE ELEMENT PERFORMANCE RESULTS
 POINT NUMBER 14 READING NUMBER 549 DATE 10/ 6/1970

RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CMBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	67.29	-1.74	61.28	6.01	559.19	1439.40	555.26	-16.87	1326.45
2	66.12	-1.61	60.25	5.87	578.50	1424.13	576.106	-18.21	1301.47
3	60.82	-3.24	57.07	3.75	666.70	1365.45	665.63	-37.66	1192.22
4	57.93	-4.73	53.90	4.03	683.92	1280.74	679.47	-56.22	1084.31
5	53.90	-4.34	50.80	3.10	705.13	1182.93	693.70	-52.61	961.25
6	50.51	-3.54	48.58	1.93	684.15	1048.77	655.83	-40.62	795.93
7	50.79	-4.00	48.02	2.77	649.15	994.73	615.96	-43.05	734.94

RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN LE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	61.63	39.86	57.52	4.11	5.85	630.07	1018.34	482.45	402.78	893.42
2	56.92	36.15	57.18	-0.26	9.21	694.34	1025.91	559.51	408.78	858.79
3	49.94	36.50	52.85	-2.91	10.89	742.58	927.34	596.84	441.71	709.67
4	44.33	36.86	46.10	-1.77	13.59	750.52	839.39	600.04	448.84	566.23
5	36.93	39.97	38.70	2.23	16.97	757.60	726.74	578.02	484.58	434.41
6	24.13	44.30	18.84	7.29	26.39	801.97	632.67	568.66	552.78	223.71
7	15.12	47.10	10.70	4.42	35.67	858.67	613.39	576.87	620.77	154.84

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	DIFFUSION FACTOR
1	1309.58	0.511	1.316	0.869	1296.19	0.532	1.4310	0.395
2	1154.56	0.617	1.264	0.897	1267.57	0.597	1.4610	0.382
3	1028.08	0.634	1.188	0.883	1151.38	0.645	1.6120	0.430
4	898.65	0.657	1.102	0.833	1036.97	0.657	1.7730	0.456
5	755.31	0.636	1.074	0.864	918.99	0.666	1.9640	0.507
6	711.89	0.600	0.920	0.937	806.49	0.707	2.2480	0.526
7					776.61	0.759	2.3470	0.531

RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS	TOT PRESS PARAM	EFFICIENCY	ABB EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF
1	5.0000	1.540	1.180	1.567	1.180	0.186	0.186	0.031	0.7605	0.7751	0.7751	0.283
2	10.0000	1.597	1.150	1.575	1.179	0.174	0.174	0.033	0.7761	0.7899	0.7899	0.291
3	30.0000	1.375	1.143	1.572	1.163	0.115	0.115	0.023	0.8493	0.8586	0.8586	0.329
4	50.0000	1.553	1.130	1.537	1.147	0.086	0.086	0.017	0.8879	0.8945	0.8945	0.378
5	70.0000	1.544	1.128	1.533	1.138	0.044	0.044	0.009	0.9450	0.9482	0.9482	0.467
6	90.0000	1.558	1.130	1.530	1.142	0.058	0.058	0.012	0.9409	0.9444	0.9444	0.556
7	99.0000	1.627	1.141	1.583	1.148	0.055	0.055	0.011	0.9507	0.9538	0.9538	0.573

OVERALL PERFORMANCE SUMMARY

SPACE DATA	ROTOR DATA	ROTOR DATA
FIXED INST.	FIXED INST.	TRAV. INST.
1.5389	1.5567	1.5000
0.8413	0.8652	0.9775
0.8506	0.8734	0.9789

Discharge Valve Settings= 9.0
 Cor. Nozzle Weight Flow= 201.1

LE Check Flow/Noz.Flow = 1.0295
 Assumed LE Flow Coeff. = 0.9890
 TE Check Flow/Noz.Flow = 1.0075
 Assumed TE Flow Coeff. = 0.9700

109770, TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV-B		BLADE ELEMENT PERFORMANCE RESULTS								
POINT NUMBER	14	READING NUMBER	549	DATE	10/ 6/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG HN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	41.40	37.09	39.47	-1.93	611.68	458.83	404.51	458.83	404.51	404.51
2	37.09	36.38	39.11	-2.02	680.34	542.49	410.29	542.49	410.29	410.29
3	36.38	36.07	39.01	-2.63	742.86	597.91	440.49	597.91	440.49	440.49
4	36.07	37.81	39.80	-3.73	755.92	610.24	444.94	610.24	444.94	444.94
5	37.81	41.08	42.22	-3.05	774.53	609.81	473.16	609.81	473.16	473.16
6	41.08	43.79	42.76	-1.14	818.09	611.96	533.41	611.96	533.41	533.41
7	43.79			-1.83	867.53	620.90	595.26	620.90	595.26	595.26
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	-0.37	2.24	-11.13	10.76	41.77	541.60	541.58	541.58	-3.46	-3.46
2	2.24	1.34	-10.10	12.34	34.85	550.92	550.48	550.48	21.53	21.53
3	1.34	-0.70	-8.87	10.21	35.04	603.32	603.01	603.01	14.13	14.13
4	-0.70	-1.06	-8.75	8.05	36.77	593.24	592.77	592.77	-7.21	-7.21
5	-1.06	0.14	-9.10	8.04	38.67	595.91	595.84	595.84	-11.03	-11.03
6	0.14	-0.75	-10.58	10.72	40.93	614.92	613.11	613.11	1.54	1.54
7	-0.75		-12.36	11.61	44.55	548.50	546.53	546.53	-7.20	-7.20
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHM				
1	0.515	0.515	1.180	1.180	0.333	0.309				
2	0.584	0.645	1.014	1.014	0.375	0.312				
3	0.645	0.662	1.009	1.009	0.363	0.316				
4	0.662	0.682	0.971	0.971	0.386	0.364				
5	0.682	0.723	0.977	0.977	0.394	0.381				
6	0.723	0.768	1.002	1.002	0.404	0.392				
7	0.768		0.880	0.880	0.530	0.356				
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TRAV TOT PRESS RATIO	LOSS TOT PRESS LOSS PARAM	POLY MOMEN RISE/ STAT PRESS EFFICIENCY	MEAS T RISE	EFFICIENCY	STAT PRESS RISE COEFF	
1	0.455	0.465	1.5230	1.5230	0.172	0.057	1.4560	0.295	0.295	
2	0.465	0.515	1.5440	1.5440	0.096	0.031	0.8907	0.295	0.295	
3	0.515	0.509	1.6310	1.6310	0.027	0.008	0.9141	0.294	0.294	
4	0.509	0.513	1.7420	1.7420	0.017	0.005	0.9383	0.340	0.340	
5	0.513	0.529	1.8800	1.8800	0.023	0.006	0.9525	0.365	0.365	
6	0.529	0.469	2.0510	2.0510	0.038	0.009	0.8936	0.363	0.363	
7	0.469		2.0980	2.0980	0.082	0.020	0.5021	0.324	0.324	
RADIAL POSITION	PERCENT RECEPTION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STATOR DATA	STATOR DATA	STATOR DATA	
1	5.0000	1.018	0.995	0.972	1.000	STAGE DATA	FIXED INST. TRAV. INST.	FIXED INST. TRAV. INST.	FIXED INST. TRAV. INST.	
2	10.0000	0.991	1.010	0.980	1.000	Total Pressure Ratio =	1.5389	0.9686	0.9899	
3	30.0000	0.991	1.009	0.993	1.000	Polytropic Efficiency =	0.8506	0.9739	0.7312	
4	50.0000	0.993	1.008	0.996	1.000	Percent Design Speed =	90.0	Discharge Valve Setting=	9.0	
5	70.0000	0.994	1.009	0.994	1.000	Cor. Nozzle Weight Flow=	201.1			
6	90.0000	0.983	1.009	0.989	1.000	IE Check Flow/Noz.Flow =	1.0075	TE Check Flow/Noz.Flow =	0.9957	
7	95.0000	0.909	1.000	0.973	1.000	Assumed IE Flow Coeff. =	0.9500	Assumed TE Flow Coeff. =	0.9350	

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. TRAV. INST. TRAV. INST. TRAV. INST.
 1.5389 0.9686 0.9899
 0.8506 0.9739 0.7312
 Discharge Valve Setting= 9.0
 90.0
 201.1
 IE Check Flow/Noz.Flow = 1.0075
 Assumed IE Flow Coeff. = 0.9500
 TE Check Flow/Noz.Flow = 0.9957
 Assumed TE Flow Coeff. = 0.9350

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

100770

ROTOR BLADE ROW - NASA TASK IV-B												
BLADE ELEMENT PERFORMANCE RESULTS												
POINT NUMBER 19 READING NUMBER 554 DATE 10/ 6/1970												
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCD ANG MN CHBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL	
1	70.88	-4.34	61.28	9.50	522.87	1582.15	517.96	-39.32	1493.77			
2	69.50	-2.55	60.25	9.25	544.47	1548.04	541.91	-24.12	1449.33			
3	64.02	-2.71	57.07	6.95	640.41	1460.13	639.86	-30.26	1312.34			
4	61.89	-4.92	53.90	7.99	643.67	1357.84	639.31	-55.04	1196.85			
5	59.63	-6.87	50.80	8.03	642.40	1249.03	629.33	-75.79	1073.85			
6	56.05	-6.48	48.58	7.47	640.46	1109.20	611.41	-69.41	908.27			
7	55.67	-6.62	48.02	7.52	620.50	1077.20	595.20	-68.02	858.73			
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	58.87	57.19	57.52	1.35	829.58	868.23	448.89	896.40	743.19			
2	55.27	50.88	57.18	-1.91	836.06	925.66	526.88	647.84	759.96			
3	48.88	49.18	52.85	-3.97	849.29	845.44	556.00	641.92	636.83			
4	42.87	50.94	46.10	-3.23	845.56	727.10	532.51	656.29	494.39			
5	35.65	52.81	34.70	0.95	832.11	620.35	501.48	661.00	359.65			
6	23.23	54.28	16.84	6.39	849.85	546.24	492.15	683.56	211.24			
7	13.60	56.51	10.70	2.90	899.31	519.73	491.94	743.51	119.01			
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHI						
1	1454.45	0.475	1.438	0.867	0.512	0.439						
2	1425.21	0.496	1.410	0.972	0.550	0.459						
3	1282.28	0.590	1.346	0.869	0.564	0.486						
4	1141.81	0.593	1.252	0.833	0.613	0.505						
5	998.06	0.593	1.153	0.797	0.652	0.536						
6	838.86	0.591	1.024	0.805	0.663	0.576						
7	790.64	0.572	0.974	0.839	0.678	0.578						
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	LOSS	TOT PRESS PARAM	EFFICIENCY	ADP EFFICIENCY	POLY MOMEN MEAS	RISE/RISE COEFF	STAT PRESS
1	1439.59	0.666	0.697	1.4310	0.342	0.6829	0.062	0.6829	0.7120	0.320	0.320	
2	1407.80	0.690	0.764	1.4610	0.297	0.7186	0.058	0.7186	0.7442	0.339	0.339	
3	1278.75	0.717	0.713	1.6120	0.182	0.8175	0.037	0.8175	0.8332	0.388	0.388	
4	1150.68	0.720	0.619	1.7730	0.168	0.8341	0.035	0.8341	0.8474	0.432	0.432	
5	1020.65	0.715	0.533	1.9650	0.126	0.8771	0.026	0.8771	0.8864	0.494	0.494	
6	895.71	0.736	0.473	2.2480	0.086	0.9291	0.018	0.9291	0.9347	0.602	0.602	
7	862.52	0.780	0.451	2.3470	0.129	0.9022	0.027	0.9022	0.9097	0.637	0.637	
RADIAL POSITION	PERCENT IMPRESSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
1	5.0000	2.023	1.340	2.004	1.322	1.322	1.322	1.322	1.322	1.322	1.322	1.322
2	10.0000	2.040	1.275	1.984	1.301	1.301	1.301	1.301	1.301	1.301	1.301	1.301
3	30.0000	1.954	1.233	1.902	1.248	1.248	1.248	1.248	1.248	1.248	1.248	1.248
4	50.0000	1.881	1.210	1.820	1.224	1.224	1.224	1.224	1.224	1.224	1.224	1.224
5	70.0000	1.609	1.190	1.758	1.198	1.198	1.198	1.198	1.198	1.198	1.198	1.198
6	90.0000	1.777	1.129	1.788	1.184	1.184	1.184	1.184	1.184	1.184	1.184	1.184
7	95.0000	1.636	1.191	1.776	1.198	1.198	1.198	1.198	1.198	1.198	1.198	1.198

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. FRAY. INST.
 = 1.8140 1.8761 1.9075
 = 0.7527 0.7991 0.8570
 = 0.7724 0.8160 0.8967
 Discharge Valve Setting= h.O
 Percent Design Speed = 99.9
 Cor. Nozzle Weight Flow= 195.3

IE Check Flow/Noz.Flow = 1.0174 TE Check Flow/Noz.Flow = 1.0158
 Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

100770 TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV-B		POINT NUMBER 19		BLADE ELEMENT PERFORMANCE RESULTS		DATE 10/ 6/1970					
		READING NUMBER 554									
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN	INCID ANG LN	INCID ANG SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1		58.55	39.47	19.08			819.83	427.76	427.76	999.39	599.39
2		51.79	39.11	12.68			827.51	511.82	511.82	650.23	650.23
3		48.97	39.01	9.96			848.69	556.97	556.97	640.15	640.15
4		50.17	39.80	10.37			845.18	540.92	540.92	648.56	648.56
5		50.78	40.86	9.92			834.98	528.80	528.80	645.41	645.41
6		51.32	42.22	9.10			850.53	528.69	528.69	660.48	660.48
7		53.56	42.76	10.80			891.42	526.45	526.45	712.95	712.95
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG	TE ANGLE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1		-1.85	-11.13	9.28		60.40	650.61	650.26	650.26	-21.01	-21.01
2		-2.26	-10.10	7.84		54.05	641.50	640.99	640.99	-25.30	-25.30
3		-3.07	-8.87	5.80		52.05	585.01	584.02	584.02	-31.34	-31.34
4		-4.12	-8.75	2.83		56.29	521.59	521.59	521.59	-55.58	-55.58
5		-3.12	-9.10	5.98		53.90	417.52	416.23	416.23	-22.72	-22.72
6		-2.37	-10.58	8.21		53.69	317.03	315.83	315.83	-13.06	-13.06
7		-4.58	-12.36	7.78		58.13	300.46	298.46	298.46	-23.88	-23.88
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS	TOY PRESS LOSS PARAM	AD9 EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAY PRESS RISE COEFF	DIFFUSION FACTOR
1		0.697	0.524	1.5230	0.193	0.193	0.063	0.5745	0.5745	0.180	0.196
2		0.682	0.522	1.5440	0.148	0.148	0.048	0.4983	0.4983	0.176	0.193
3		0.716	0.481	1.6310	0.131	0.131	0.040	0.5689	0.5689	0.269	0.294
4		0.720	0.430	1.7420	0.100	0.100	0.029	0.6573	0.6573	0.373	0.402
5		0.717	0.346	1.8800	0.071	0.071	0.019	0.711	0.711	0.496	0.571
6		0.737	0.262	2.0510	0.046	0.046	0.011	0.817	0.817	0.571	0.571
7		0.772	0.248	2.0980	0.048	0.048	0.012	0.856	0.856	0.548	0.548
RADIAL POSITION	PERCENT IMMERSSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	TOY PRESS LOSS PARAM	AD9 EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAY PRESS RISE COEFF	
1	3.0000	0.957	0.961	0.992	1.000	1.000	0.063	0.5745	0.5745	0.180	
2	30.0000	0.939	0.990	0.960	1.000	1.000	0.048	0.4983	0.4983	0.176	
3	30.0000	0.924	1.000	0.961	1.000	1.000	0.040	0.5689	0.5689	0.269	
4	50.0000	0.928	1.001	0.970	1.000	1.000	0.029	0.6573	0.6573	0.373	
5	70.0000	0.918	0.998	0.979	1.000	1.000	0.019	0.711	0.711	0.496	
6	90.0000	0.893	1.005	0.985	1.000	1.000	0.011	0.817	0.817	0.571	
7	95.0000	0.878	0.998	0.983	1.000	1.000	0.012	0.856	0.856	0.548	

OVERALL PERFORMANCE SUMMARY
 STAGE DATA. STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.8140 0.9669 0.9279
 0.7724 0.9466 0.6440
 Discharge Valve Settings h,0
 = 99.9
 195.3
 IE Check Flow/Noz.Flow = 1.0158 TE Check Flow/Noz.Flow = 0.9950
 Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV-B																										
BLADE ELEMENT PERFORMANCE RESULTS																										
POINT NUMBER 24 READING NUMBER 593 DATE 10/ 7/1970																										
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	CHBR LN MN ANGLE	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	REL TURN ANGLE	REL DEV ANG TE	CHBR LN TE ANGLE	CHBR LN LE ANGLE	ABS EXIT FLOW ANG	REL EXIT FLOW ANG	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS TOT PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ RISE	STAT PRESS RISE COEFF	
1	65.47	-1.77	61.28	4.19	1525.91	679.00	1625.91	674.21	-20.84	1477.49	5.47	2.48	57.52	61.28	25.28	60.00	1451.76	0.627	1.502	0.970	0.177	0.031	0.6664	0.6802	0.133	
2	64.21	-1.56	60.25	3.96	1607.49	701.69	1607.49	698.81	-19.02	1446.38	7.05	-0.02	57.18	60.25	21.21	57.16	1427.37	0.659	1.488	1.041	0.116	0.022	0.7804	0.7907	0.138	
3	58.52	-0.73	57.07	1.45	1517.78	792.72	1517.78	792.64	-10.14	1294.36	7.02	-1.35	52.85	57.07	25.60	51.50	1284.22	0.743	1.423	0.931	0.126	0.024	0.7824	0.7930	0.194	
4	55.17	-0.35	53.90	1.27	1400.45	803.47	1400.45	798.95	-4.51	1148.44	9.22	-0.14	46.10	53.90	27.02	45.96	1143.54	0.751	1.313	0.934	0.131	0.026	0.7883	0.7984	0.245	
5	52.57	-2.02	50.80	1.77	1300.26	797.54	1300.26	786.33	-27.75	1027.32	13.32	4.55	34.70	50.80	34.54	39.25	999.57	0.748	1.220	0.863	0.139	0.027	0.8067	0.8167	0.317	
6	49.60	-3.17	48.58	1.02	1178.17	782.61	1178.17	750.47	-41.54	881.67	29.71	3.05	16.84	49.60	38.32	19.89	840.13	0.733	1.104	1.038	0.174	0.032	0.8368	0.8469	0.327	
7	49.70	-3.35	48.02	1.68	1116.29	744.09	1116.29	706.50	-41.30	833.14	37.93	1.07	10.70	49.70	41.99	11.77	791.94	0.695	1.043	1.103	0.174	0.036	0.8306	0.8410	0.290	
DIFFUSION CHI																										
1	1451.76	0.627	1.502	0.970	0.177	0.031	0.6664	0.6802	0.133	0.218																
2	1427.37	0.659	1.488	1.041	0.116	0.022	0.7804	0.7907	0.138	0.228																
3	1284.22	0.743	1.423	0.931	0.126	0.024	0.7824	0.7930	0.194	0.278																
4	1143.54	0.751	1.313	0.934	0.131	0.026	0.7883	0.7984	0.245	0.312																
5	999.57	0.748	1.220	0.863	0.139	0.027	0.8067	0.8167	0.317	0.366																
6	840.13	0.733	1.104	1.038	0.174	0.032	0.8368	0.8469	0.327	0.420																
7	791.94	0.695	1.043	1.103	0.174	0.036	0.8306	0.8410	0.249	0.520																

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS = 1.3735 1.4409 1.4620
 Total Pressure Ratio = 0.6805 0.7686 0.9385
 Adiabatic Efficiency = 0.6945 0.7992 0.9417
 Polytropic Efficiency = 100.1 Discharge Valve Setting= 30.0
 Percent Design Speed = 224.7
 Cor. Nozzle Weight Flow=

IE Check Flow/Noz.Flow = 0.9880 TE Check Flow/Noz.Flow = 0.9866
 Assumed IE Flow Coeff. = 0.9550 Assumed TE Flow Coeff. = 0.9500

100872 **TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)**

STATOR BLADE ROW - NASA TASK IV-B		POINT NUMBER 24		BLADE ELEMENT PERFORMANCE RESULTS		READING NUMBER 593		DATE 10/ 7/1970		
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHMBR LN LE ANGLE	INCLD ANG HN CHMBR LN	INCLD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	26.77	22.07	39.47	-12.70	588.78	614.97	614.97	699.18	310.20	283.49
2	25.49	20.81	39.11	-17.04	754.49	754.49	754.49	819.32	352.49	352.49
3	26.24	21.56	39.80	-13.52	819.32	819.32	819.32	739.130	376.15	376.15
4	32.26	28.60	40.86	-8.60	858.55	858.55	858.55	723.15	456.40	456.40
5	33.92	30.30	42.22	-8.30	1074.23	1074.23	1074.23	883.15	593.84	593.84
7	37.54	34.76	42.76	-9.22	1115.40	1115.40	1115.40	875.41	672.63	672.63
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHMBR LN TE ANGLE	DEV ANGLE TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	1.24	0.60	-11.13	12.37	25.23	703.08	703.08	702.92	15.16	15.16
2	0.60	0.60	-10.10	10.70	21.47	741.68	741.68	741.62	7.77	7.77
3	1.12	0.99	-8.87	24.37	24.37	787.61	787.61	787.26	15.41	15.41
4	-0.40	6.35	-8.75	6.35	26.63	801.02	801.02	800.43	-5.55	-5.55
5	-2.04	7.06	-9.10	7.06	34.30	833.90	833.90	832.03	-29.71	-29.71
6	-6.07	4.51	-10.58	4.51	32.98	808.53	808.53	801.67	-85.20	-85.20
7	-12.24	7.12	-12.36	7.12	42.78	703.63	703.63	698.125	-64.07	-64.07
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	LOSS COEFFICIENT	POLY MOMEN RISE/ STAT PRESS EFFICIENCY	DIFFUSION FACTOR	CH1	
1	0.596	0.612	0.612	1.143	1.5230	0.236	1.6576	0.120	-0.088	
2	0.654	0.652	0.652	1.061	1.5440	0.126	1.1879	0.135	0.040	
3	0.724	0.693	0.693	1.065	1.5310	0.104	0.9319	0.164	0.073	
4	0.760	0.708	0.708	1.049	1.7420	0.115	0.8068	0.188	0.097	
5	0.783	0.736	0.736	1.151	1.8800	0.122	0.9920	0.178	0.062	
6	0.977	0.707	0.707	0.908	2.0510	0.197	0.3021	0.399	0.127	
7	1.015	0.608	0.608	0.798	2.0980	0.228	0.1782	0.524	0.101	
RADIAL POSITION	PERCENT DIMERGICH	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	LOSS	POLY MOMEN RISE/ STAT PRESS EFFICIENCY	STAT PRESS RISE COEFF	
1	5.0000	0.991	0.989	0.950	0.950	1.000	1.000	1.6576	-0.088	
2	10.0000	1.002	1.000	0.968	0.968	1.000	1.000	1.1879	0.036	
3	30.0000	0.998	1.003	0.969	0.969	1.000	1.000	0.9319	0.065	
4	50.0000	1.001	1.005	0.960	0.960	1.000	1.000	0.8068	0.096	
5	70.0000	1.000	1.007	0.963	0.963	1.000	1.000	0.9920	0.055	
6	90.0000	0.923	1.000	0.906	0.906	1.000	1.000	0.3021	0.104	
7	95.0000	0.716	0.987	0.883	0.883	1.000	1.000	0.1782	0.081	

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.3735 0.9532 0.9668
 0.6945 0.8690 0.4866
 Discharge Valve Setting=30.0
 Percent Design Speed = 100.3
 Cor. Nozzle Weight Flow= 224.7

LE Check Flow/Noz.Flow = 0.9866
 Assumed LE Flow Coeff. = 0.9500
 TE Check Flow/Noz.Flow = 0.0602
 Assumed TE Flow Coeff. = 0.9350

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 TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

POINT NUMBER 25		READING NUMBER 594		DATE 10/ 7/1970						
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	MN CHBR LN INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	67.26	-0.25	61.28	5.98	615.50	1583.18	611.44	-2.62	1458.63	
2	65.52	-0.68	60.25	5.27	655.71	1577.27	653.22	-7.60	1434.53	
3	59.94	-1.08	57.07	2.87	751.823	1499.51	751.09	-14.19	1297.84	
4	55.55	-2.89	53.90	4.09	740.93	1391.02	737.68	-37.19	1188.22	
5	52.41	-4.37	50.80	4.75	735.22	1284.26	723.27	-55.31	1054.43	
6	52.41	-4.75	48.58	3.83	721.35	1149.70	690.52	-57.32	897.08	
7	52.149	-4.66	45.02	5.47	683.64	1085.14	648.16	-52.88	844.57	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANGLE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	61.34	52.78	57.52	3.82	5.92	758.49	956.02	488.06	603.06	838.07
2	53.66	45.09	57.18	-3.52	11.86	846.21	1007.77	596.52	598.38	810.92
3	48.73	42.69	52.85	-4.12	11.21	844.75	941.34	620.92	572.67	707.44
4	44.02	41.77	46.10	-2.08	13.97	829.02	818.50	588.21	563.48	568.43
5	36.66	47.21	34.70	1.96	18.90	827.40	701.59	539.96	605.00	416.73
6	26.72	51.26	16.84	9.88	25.70	826.54	581.49	512.45	638.75	257.91
7	17.48	54.25	10.70	6.78	35.00	875.74	544.99	506.70	703.83	159.61
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/RISE COEFF	STAT PRESS RISE COEFF	DISELUSION FACTOR
1	1456.01	0.565	1.7453	0.749	0.233	0.839	0.7540	0.7748	0.323	0.443
2	1426.73	0.604	1.453	0.913	0.203	0.841	0.7810	0.7996	0.321	0.444
3	1283.65	0.699	1.395	0.827	0.182	0.827	0.8547	0.8667	0.368	0.493
4	1143.03	0.689	1.294	0.797	0.100	0.820	0.8912	0.8998	0.445	0.539
5	999.12	0.683	1.192	0.724	0.070	0.814	0.9272	0.9327	0.512	0.588
6	839.76	0.669	1.067	0.742	0.086	0.817	0.9223	0.9281	0.647	0.630
7	791.49	0.632	1.004	0.782	0.106	0.822	0.9130	0.9196	0.652	0.642
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/RISE COEFF	STAT PRESS RISE COEFF	DISELUSION FACTOR
1	1441.12	0.626	1.789	1.4310	0.233	0.839	0.7540	0.7748	0.323	0.443
2	1409.30	0.709	1.845	1.4610	0.203	0.841	0.7810	0.7996	0.321	0.444
3	1280.11	0.719	1.801	1.6120	0.182	0.827	0.8547	0.8667	0.368	0.493
4	1151.91	0.710	1.701	1.7730	0.100	0.820	0.8912	0.8998	0.445	0.539
5	1021.74	0.714	1.605	1.9640	0.070	0.814	0.9272	0.9327	0.512	0.588
6	896.66	0.714	1.505	2.2480	0.086	0.817	0.9223	0.9281	0.647	0.630
7	863.44	0.757	1.471	2.3470	0.106	0.822	0.9130	0.9196	0.652	0.642
RADIAL POSITION	PERCENT DISCHARGE	TRAVEL RATIO	TRAVEL RATIO	FIXED TOT PRESS. RATIO	FIXED TOT TEMP. RATIO	LOSS COEFFICIENT	ADB EFFICIENCY	POLY MOMEN RISE/RISE COEFF	STAT PRESS RISE COEFF	DISELUSION FACTOR
1	5.0000	1.871	1.255	1.883	1.233	0.233	0.7540	0.7748	0.323	0.443
2	10.0000	1.945	1.241	1.888	1.255	0.203	0.7810	0.7996	0.321	0.444
3	30.0000	1.870	1.204	1.851	1.225	0.182	0.8547	0.8667	0.368	0.493
4	50.0000	1.814	1.184	1.798	1.205	0.100	0.8912	0.8998	0.445	0.539
5	70.0000	1.766	1.168	1.756	1.188	0.070	0.9272	0.9327	0.512	0.588
6	90.0000	1.747	1.167	1.739	1.168	0.086	0.9223	0.9281	0.647	0.630
7	95.0000	1.821	1.183	1.741	1.168	0.106	0.9130	0.9196	0.652	0.642

OVERALL PERFORMANCE SUMMARY
 STAGE DATA ROTOR DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST. TRAV. INST.
 1.7876 1.8207 1.8373
 0.8252 0.8535 0.9562
 0.8369 0.8654 0.9598
 Discharge Valve Setting = 6.0
 Percent Design Speed = 100.1
 Cor. Nozzle Weight Flow = 212.6
 IE Check Flow/Noz.Flow = 1.0112
 Assumed IE Flow Coeff. = 0.9890
 Assumed TE Flow Coeff. = 0.9500

100970 TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV#9		BLADE ELEMENT PERFORMANCE RESULTS										ROTOR BLADE ROW - NASA TASK IV#9												
POINT NUMBER		25		25		25		25		25		25		25		25		25		25				
READING NUMBR		594		594		594		594		594		594		594		594		594		594				
DATE		18/ 7/1970		18/ 7/1970		18/ 7/1970		18/ 7/1970		18/ 7/1970		18/ 7/1970		18/ 7/1970		18/ 7/1970		18/ 7/1970		18/ 7/1970				
RADIAL POSITION	1	REL INLET FLOW ANG	54.24	ABS INLET FLOW ANG	46.10	CMBR LN LE ANGLE	31.47	INCID ANG	14.77	MN CMBR LN	39.11	INCID LN ANGLE	6.99	INCID ANG	746.37	INLET ABS VELOCITY	436.17	INLET AX VELOCITY	578.06	INLET ABS TANG VEL	600.59	INLET ABS TANG REL	605.65	
	2		42.55		37.01		37.01		3.54		844.67		622.08		831.56		598.05		576.61		590.74		590.74	
	3		43.95		40.86		40.86		4.15		831.75		590.99		871.51		542.48		616.37		674.54		674.54	
	4		45.04		42.22		42.22		5.99		871.51		542.48											
	5		48.21		42.22		42.22		6.45															
	6		51.21																					
	7																							
RADIAL POSITION	1	REL EXIT FLOW ANG	-0.53	ABS EXIT FLOW ANG	1.24	CMBR LN LE ANGLE	-1.13	DEV ANGLE	10.60	INCID ANG	54.77	TURN ANGLE	54.77	INCID ANG	599.88	EXIT ABS VELOCITY	599.85	EXIT AX VELOCITY	599.85	EXIT ABS TANG VEL	5.50	EXIT ABS TANG REL	5.50	
	2		1.16		-0.87		-0.87		11.34		44.85		44.85		608.22		608.22		608.22		13.17		13.17	
	3		-0.38		-0.75		-0.75		10.03		41.39		41.39		635.37		635.37		635.37		12.91		12.91	
	4		-2.17		-1.10		-1.10		6.93		47.21		47.21		520.65		520.65		520.65		-4.01		-4.01	
	5		-3.24		-1.37		-1.37		11.37		33.23		33.23		338.23		338.23		338.23		-19.72		-19.72	
	6								9.12		54.45		54.45		342.94		342.94		342.94		-19.30		-19.30	
	7																							
RADIAL POSITION	1	ROTOR SPD AT INLET	0.615	INLET ABS MACH NO	0.698	INLET REL MACH NO	1.375	AXIAL VEL RATIO	1.052															
	2		0.719		1.021		1.021		1.603															
	3		0.723		0.880		0.880		0.612															
	4		0.719		0.629		0.629																	
	5																							
	6																							
	7																							
RADIAL POSITION	1	ROTOR SPD AT EXIT	0.490	EXIT ABS MACH NO	0.500	EXIT REL MACH NO	1.5230	SOLIDITY RATIO	1.5440	LOSS COEFFICIENT	0.129	TOT PRESS LOSS PARAM	0.842	POLY EFFICIENCY	1.0439	MEAS T RISE	0.344	STAT PRESS RISE COEFF	0.344					
	2		0.528		0.501		1.6310		1.7420		0.059	0.919	0.7814	0.8566	0.344									
	3		0.435		0.281		1.8800		2.0510		0.058	0.915	0.8595	0.6864	0.494									
	4		0.284		0.1993		2.0980				0.095	0.823	0.6441	0.500										
	5																							
	6																							
	7																							
RADIAL POSITION	1	PERCENT DECELERATION	5.0000	TRAV TOT PRESS RATIO	0.994	FIXED TOT PRESS RATIO	0.971	FIXED TOT TEMP RATIO	1.000	PERFORMANCE PARAMETERS														
	2		10.0000		0.966		0.983		1.000	Total Pressure Ratio =	1.7876	0.9818	0.9727											
	3		30.0000		0.978		0.985		1.000	Polytropic Efficiency =	0.8389	0.9694	0.7952											
	4		50.0000		0.988		0.987		1.000	Percent Design Speed =	100.1	Discharge Valve Setting=	6.0											
	5		70.0000		0.969		0.969		1.000	Cor. Nozzle Weight Flow =	212.6													
	6		90.0000		0.913		0.974		1.000															
	7		95.0000		0.692		0.969		1.000															

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.7876 0.9818 0.9727
 Polytropic Efficiency = 0.8389 0.9694 0.7952
 Percent Design Speed = 100.1
 Cor. Nozzle Weight Flow = 212.6
 IE Check Flow/Noz.Flow = 0.9959 TE Check Flow/Noz.Flow = 0.9836
 Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9550

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV-B		BLADE ELEMENT PERFORMANCE RESULTS				POINT NUMBER 26				READING NUMBER 595				DATE 10/ 7/1970			
RADIAL POSITION	RFL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	REL TURN ANGLE	REL DEV ANG TE	REL LN TE ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	65.86	-0.98	61.28	4.58	661.30	1607.98	656.85	-11.24	1465.75	4.77	3.57	57.52	742.41	1006.58	486.07	559.35	880.29
2	64.80	-1.78	60.25	4.55	683.46	1599.58	680.59	-21.11	1448.57	8.97	-1.35	57.18	795.48	1098.06	613.94	503.56	904.29
3	58.94	-1.12	57.07	1.87	781.56	1514.67	781.40	-15.22	1297.55	9.38	-3.29	52.85	829.58	978.73	634.82	533.94	744.85
4	55.47	-0.45	53.90	1.57	792.24	1394.82	789.74	-6.15	1149.00	10.23	-0.86	46.10	812.49	869.98	612.21	533.33	617.39
5	52.78	-1.44	50.80	1.98	783.80	1342.27	773.02	-19.44	1017.53	15.65	2.43	34.70	826.20	741.63	588.31	575.30	445.39
6	50.54	-3.76	48.58	1.96	761.63	1168.04	729.94	-47.97	886.86	24.52	9.18	16.84	649.27	584.61	520.11	272.63	
7	50.84	-4.19	48.02	2.82	721.76	1108.97	684.70	-50.13	840.81	36.88	3.31	10.70	934.95	617.52	583.53	716.94	145.61

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS PANAM	EFFICIENCY	ADAB EFFICIENCY	POLY MOMEN RISE/ STAT PRESS	DIFFUSION FACTOR
1	1454.51	0.610	0.838	1.4310	0.202	0.034	0.7650	0.7833	0.301	0.497
2	1425.27	0.631	0.928	1.4610	0.164	0.031	0.8043	0.8196	0.302	0.428
3	1278.80	0.710	0.838	1.6120	0.107	0.022	0.8710	0.8810	0.368	0.474
4	1150.73	0.701	0.750	1.7750	0.090	0.018	0.8948	0.9029	0.451	0.486
5	998.10	0.733	0.643	1.9640	0.069	0.014	0.9235	0.9290	0.528	0.531
6	838.89	0.711	0.558	2.2480	0.087	0.017	0.9159	0.9219	0.602	0.582
7	790.67	0.671	0.541	2.3470	0.086	0.018	0.9245	0.9309	0.590	0.595

RADIAL POSITION	PERCENT IMPERSON PRESS RATIO	TRAV TOT TEMP. RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS PANAM	EFFICIENCY	ADAB EFFICIENCY	POLY MOMEN RISE/ STAT PRESS	DIFFUSION FACTOR
1	5.0000	1.787	1.229	1.786	1.236	0.034	0.7650	0.7833	0.301	0.497
2	10.0000	1.838	1.201	1.790	1.225	0.031	0.8043	0.8196	0.302	0.428
3	30.0000	1.797	1.187	1.775	1.205	0.022	0.8710	0.8810	0.368	0.474
4	50.0000	1.743	1.167	1.720	1.187	0.018	0.8948	0.9029	0.451	0.486
5	70.0000	1.728	1.160	1.698	1.177	0.014	0.9235	0.9290	0.528	0.531
6	90.0000	1.710	1.158	1.694	1.178	0.017	0.9159	0.9219	0.602	0.582
7	95.0000	1.703	1.176	1.710	1.179	0.018	0.9245	0.9309	0.590	0.595

OVERALL PERFORMANCE SUMMARY			
RADIAL POSITION	PERCENT IMPERSON PRESS RATIO	TRAV TOT TEMP. RATIO	FIXED TOT PRESS RATIO
1	5.0000	1.787	1.229
2	10.0000	1.838	1.201
3	30.0000	1.797	1.187
4	50.0000	1.743	1.167
5	70.0000	1.728	1.160
6	90.0000	1.710	1.158
7	95.0000	1.703	1.176

PERFORMANCE PARAMETERS			
STAGE DATA	ROTOR DATA	ROTOR DATA	ROTOR DATA
FIXED INST.	FIXED INST.	FIXED INST.	FIXED INST.
Total Pressure Ratio =	1.7222	1.7442	1.7702
Adiabatic Efficiency =	0.8450	0.8664	0.9644
Polytropic Efficiency =	0.8564	0.8764	0.9856
Percent Design Speed =	100.1	Discharge Valve Setting=	8.0
Cor. Nozzle Weight Flow=	221.2		

LE Check Flow/Noz.Flow = 0.9956			
Assumed LE Flow Coeff. = 0.9850			
TE Check Flow/Noz.Flow =	0.9794		
Assumed TE Flow Coeff. =	0.9700		

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

100670		STATOR BLADE ROW - NASA TASK IV-B									
		BLADE ELEMENT PERFORMANCE RESULTS					POINT NUMBER 26				
		READING NUMBER 595					DATE 10/ 7/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	50.55	40.37	39.47	11.08	727.51	462.28	561.76	594.40	561.76	505.42	
2	40.37	39.11	39.01	11.26	780.25	636.03	532.47	622.73	527.05	527.05	
3	39.94	39.01	39.80	0.44	829.71	816.72	620.98	609.67	598.38	598.38	
4	40.24	40.86	40.86	1.27	839.92	860.20	609.67	609.67	598.38	598.38	
5	42.13	42.22	42.22	2.24	860.20	930.51	628.16	628.16	628.16	628.16	
6	44.46	42.22	42.22	2.24	860.20	930.51	628.16	628.16	628.16	628.16	
7	47.56	42.22	42.22	4.60	930.51	628.16	628.16	628.16	628.16	628.16	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	-0.48	0.39	-11.13	10.65	51.03	588.07	588.07	588.07	-4.94	-4.94	
2	0.39	0.39	-10.10	10.49	39.98	595.72	595.72	595.72	4.08	4.08	
3	-0.35	-0.17	-8.87	8.52	40.28	608.56	608.56	608.56	-3.70	-3.70	
4	-0.17	-0.13	-8.75	8.98	40.42	599.06	599.06	599.06	-1.82	-1.82	
5	-0.13	1.09	-9.10	8.97	42.26	594.44	594.44	594.44	-1.30	-1.30	
6	1.09	-10.58	-10.58	11.64	43.41	556.89	556.89	556.89	10.25	10.25	
7	-2.33	-12.36	-12.36	10.03	49.90	490.26	490.26	490.26	-19.90	-19.90	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR						
1	0.605	0.660	0.711	1.272	0.447						
2	0.660	0.711	0.957	1.002	0.444						
3	0.711	0.705	0.941	0.957	0.464						
4	0.705	0.730	0.956	0.941	0.451						
5	0.730	0.750	0.911	0.956	0.469						
6	0.750	0.822	0.777	0.911	0.516						
7	0.822			0.777	0.654						
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR						
1	0.485	0.495	0.510	1.5230	0.334						
2	0.495	0.510	0.505	1.5440	0.335						
3	0.510	0.505	0.470	1.6310	0.355						
4	0.505	0.470	0.411	1.7420	0.427						
5	0.470	0.411	0.380	1.8800	0.458						
6	0.411	0.380	0.350	2.0510	0.482						
7	0.380	0.350	0.320	2.0980	0.480						
RADIAL POSITION	PERCENT DIVERGENCE	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY WOMEN RISE/ MEAS Y RISE	STAT PRESS RISE COEFF	
1	5.0000	0.998	0.992	0.974	1.000	0.121	0.040	0.9822	0.9822	0.315	
2	10.0000	0.976	1.000	0.990	1.000	0.040	0.013	0.8079	0.8079	0.312	
3	30.0000	0.965	0.997	0.990	1.000	0.035	0.011	0.7767	0.7767	0.328	
4	50.0000	0.986	1.004	0.993	1.000	0.025	0.009	0.9239	0.9239	0.398	
5	70.0000	0.985	1.003	0.990	1.000	0.034	0.009	0.9195	0.9195	0.427	
6	90.0000	0.943	1.004	0.983	1.000	0.055	0.013	0.8327	0.8327	0.448	
7	95.0000	0.898	0.993	0.970	1.000	0.081	0.019	0.6741	0.6741	0.441	
OVERALL PERFORMANCE SUMMARY											
STAGE DATA STATOR DATA STATOR DATA											
FIXED INST. FIXED INST. TRAV. INST.											
Total Pressure Ratio = 1.7222 0.9874 0.9754											
Polytropic Efficiency = 0.9564 0.9772 0.8337											
Percent Design Speed = 100.0 Discharge Valve Setting= 8.0											
Cor. Nozzle Weight Flow= 221.2											
IE Check Flow/Noz.Flow = 0.9794 TE Check Flow/Noz.Flow = 0.9700											
Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350											

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

100970

ROTOR BLADE ROW - NASA TASK IV-B																
BLADE ELEMENT PERFORMANCE RESULTS DATE 10/ 7/1970																
POINT NUMBER 15 READING NUMBER 642																
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	MN CMBR LN ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	REL TURN ANGLE	REL DEV ANGLE	REL INLET FLOW ANG	REL EXIT FLOW ANG	ROTOR SPD AT INLET		
1	67.74	0.29	61.28	6.46	597.95	1569.44	594.01	2.99	1451.07	6.77	3.45	57.52	50.99	1454.06		
2	66.52	0.92	60.25	6.27	621.05	1554.14	618.73	0.17	1424.63	10.99	-1.65	57.18	55.53	1424.82		
3	63.13	0.58	57.07	6.06	646.16	1429.76	646.12	6.50	1275.43	12.19	-1.91	52.85	50.94	1281.93		
4	60.30	2.59	53.90	6.40	637.49	1262.17	634.85	28.67	1112.83	14.36	-0.10	46.10	45.94	1141.50		
5	58.66	-1.56	50.80	7.86	626.37	1176.22	617.72	28.67	1014.56	19.31	4.66	47.12	39.36	997.79		
6	55.75	1.54	48.58	7.17	584.22	1009.64	560.84	15.05	823.58	28.35	10.55	50.45	27.39	835.63		
7	57.61	0.42	48.02	8.99	537.07	952.55	510.72	3.71	786.72	36.71	9.60	53.46	20.10	790.43		
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL INLET ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	DIFFUSION FACTOR	CH1	REL EXIT FLOW ANG	REL INLET ANGLE	ROTOR SPD AT EXIT		
1	50.99	43.68	57.52	6.77	753.82	979.16	474.69	583.91	855.27	0.505	0.435	50.99	60.97	1439.19		
2	57.18	44.83	52.85	10.99	808.19	1032.22	583.60	557.23	850.18	0.458	0.445	55.53	55.53	1407.41		
3	52.85	44.83	46.10	12.19	807.38	938.76	591.47	549.47	728.92	0.482	0.541	50.94	50.94	1150.37		
4	46.10	47.12	34.70	14.36	800.56	816.42	587.43	284.04	588.33	0.542	0.574	45.94	45.94	1020.57		
5	39.36	47.12	34.70	19.31	793.58	698.96	537.89	579.23	441.14	0.551	0.652	47.12	39.36	895.46		
6	27.39	50.45	16.84	28.35	821.09	594.07	517.82	627.12	268.34	0.582	0.659	50.45	27.39	862.28		
7	20.10	53.46	10.70	36.71	850.95	548.13	501.55	676.80	185.48			53.46	20.10			
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	EXIT REL MACH NO	EXIT ABS MACH NO	TOT PRESS LOSS PARAM	EFFICIENCY	POLY MOMEN RISEZ	STAT PRESS RISE COEFF	ROTOR DATA INST. TRAV. INST.	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	PERCENT DIMENSION	TRAV TOT PRESS RATIO	EXIT REL MACH NO	EXIT ABS MACH NO	
1	5.0070	1.857	1.269	0.809	0.038	0.7612	0.7815	0.316	1.7783	Total Pressure Ratio =	1.8233	5.0070	1.857	1.269	0.809	
2	10.0030	1.915	1.244	0.866	0.038	0.7852	0.8042	0.323	0.8197	Adiabatic Efficiency =	0.8854	10.0030	1.915	1.244	0.866	
3	30.0000	1.851	1.218	0.698	0.029	0.8405	0.8535	0.387	0.8337	Polytropic Efficiency =	0.8606	30.0000	1.796	1.200	0.785	
4	50.0000	1.796	1.200	0.602	0.025	0.8752	0.8850	0.477		Percent Design Speed =	99.9	50.0000	1.762	1.184	0.746	
5	70.0000	1.762	1.184	0.513	0.016	0.9200	0.9260	0.542		Cor. Nozzle Weight Flow =	210.6	70.0000	1.760	1.183	0.746	
6	90.0000	1.760	1.183	0.2480	0.020	0.9316	0.9316	0.711		TE Check Flow/Noz.Flow =	0.9536	90.0000	1.807	1.191	0.744	
7	95.0000	1.807	1.191	2.5470	0.026	0.9136	0.9201	0.768		Assumed TE Flow Coeff. =	0.9500	95.0000				

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

100970		STATOR BLADE ROM - NASA TASK IV-B														
		BLADE ELEMENT PERFORMANCE RESULTS										DATE 10/ 7/1970				
		POINT NUMBER 15										READING NUMBER 642				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE	CMR LN ANGLE	INCID ANG LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	52.39	44.67	39.47	39.11	5.56	740.25	795.60	451.73	562.82	586.44	559.29	740.25	795.60	451.73	562.82	586.44
2	42.76	44.03	39.80	39.01	3.75	802.80	807.25	592.53	576.66	547.96	557.40	802.80	807.25	592.53	576.66	547.96
3	44.98	47.38	42.22	40.86	4.12	802.30	827.57	565.88	556.93	565.58	605.15	802.30	827.57	565.88	556.93	605.15
4	47.38	50.41	42.76	42.76	7.65	847.78	847.78	536.67	648.99	648.99	648.99	847.78	847.78	536.67	648.99	648.99
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN TE	CMR LN ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	0.14	1.40	-11.13	-11.13	11.27	52.25	602.70	602.69	602.69	1.52	1.52	602.70	602.69	602.69	1.52	1.52
2	1.40	0.75	-10.10	-10.10	11.50	43.27	601.53	601.34	601.34	14.65	14.65	601.53	601.34	601.34	14.65	14.65
3	0.75	-0.13	-8.75	-8.75	9.62	42.01	615.52	615.31	615.31	8.07	8.07	615.52	615.31	615.31	8.07	8.07
4	-0.13	1.49	-9.10	-9.10	8.37	45.71	540.92	540.91	540.91	-6.88	-6.88	540.92	540.91	540.91	-6.88	-6.88
5	1.49	-2.62	-10.58	-10.58	12.07	45.68	383.79	382.54	382.54	9.97	9.97	383.79	382.54	382.54	9.97	9.97
6	-2.62		-12.36	-12.36	9.74	53.83	362.11	360.46	360.46	-16.49	-16.49	362.11	360.46	360.46	-16.49	-16.49
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	INLET ABS MACH NO	EXIT ABS MACH NO	EXIT REL MACH NO	LOSS COEFFICIENT	LOSS PARAM	IOI PRESS EFFICIENCY	ADP PRESS EFFICIENCY	POLY MOMEN RISE/ RISE	STAY PRESS RISE COEFF	DIFFUSION FACTOR	CH4	
1	0.610	0.667	0.686	1.038	0.492	0.495	0.512	1.5230	0.151	0.049	1.0303	0.7640	0.302	0.445	0.373	
2	0.667	0.687	0.691	1.020	0.495	0.491	0.491	1.5440	0.056	0.018	1.0303	0.7640	0.302	0.465	0.326	
3	0.687	0.691	0.691	1.020	0.495	0.491	0.491	1.5440	0.056	0.018	1.0303	0.7640	0.302	0.442	0.345	
4	0.691	0.691	0.691	1.020	0.495	0.491	0.491	1.5440	0.056	0.018	1.0303	0.7640	0.302	0.466	0.436	
5	0.691	0.691	0.691	1.020	0.495	0.491	0.491	1.5440	0.056	0.018	1.0303	0.7640	0.302	0.514	0.486	
6	0.691	0.691	0.691	1.020	0.495	0.491	0.491	1.5440	0.056	0.018	1.0303	0.7640	0.302	0.708	0.518	
7	0.691	0.691	0.691	1.020	0.495	0.491	0.491	1.5440	0.056	0.018	1.0303	0.7640	0.302	0.756	0.492	
RADIAL POSITION	PERCENT IMMERISION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS PARAM	IOI PRESS EFFICIENCY	ADP PRESS EFFICIENCY	POLY MOMEN RISE/ RISE	STAY PRESS RISE COEFF	DIFFUSION FACTOR	CH4			
1	5.0000	1.002	0.969	0.995	0.967	1.000	1.000	0.049	0.049	0.018	0.018	0.8230	0.320			
2	10.0000	0.976	0.985	1.001	0.985	1.000	1.000	0.018	0.018	0.018	0.018	0.9391	0.409			
3	30.0000	0.976	0.985	1.001	0.985	1.000	1.000	0.018	0.018	0.018	0.018	0.8910	0.452			
4	50.0000	0.976	0.985	1.001	0.985	1.000	1.000	0.018	0.018	0.018	0.018	0.8704	0.488			
5	70.0000	0.980	0.984	1.005	0.984	1.000	1.000	0.020	0.020	0.024	0.024	0.6134	0.460			
6	90.0000	0.914	0.976	0.999	0.976	1.000	1.000	0.024	0.024	0.024	0.024	0.6134	0.460			
7	95.0000	0.892	0.996	0.996	0.996	1.000	1.000	0.024	0.024	0.024	0.024	0.6134	0.460			

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.7783 0.9616 0.9745
 Polyropic Efficiency = 0.8337 0.9687 0.7626
 Percent Design Speed = 99.9 Discharge Valve Setting= 6.0
 Cor. Nozzle Weight Flow= 210.6
 LE Check Flow/Noz. Flow = 0.9957 TE Check Flow/Noz. Flow = 0.9970
 Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

100976

		ROTOR BLADE ROW - NASA TASK IV-B													
		BLADE ELEMENT PERFORMANCE RESULTS													
		POINT NUMBER 16 READING NUMBER 643 DATE 10/ 7/1970													
RADIAL POSITION	REL T/LEFT FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CMBR LN	INLET ABS VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL VELOCITY	EXIT ABS VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL VELOCITY			
1	66.31	0.38	61.28	5.03	840.04	835.81	4.18	1584.30	730.42	501.19	522.31	289.27			
2	65.22	-0.41	60.25	4.97	662.04	659.155	-4.75	1774.86	784.51	610.91	489.86	916.94			
3	61.92	0.29	57.07	4.85	681.77	681.75	3.43	1448.43	825.57	631.41	531.77	746.08			
4	59.29	1.41	53.90	5.39	670.32	668.03	16.47	1309.06	751.22	593.06	522.93	624.94			
5	56.43	3.09	50.80	5.63	648.72	639.08	34.49	1160.50	799.43	571.71	554.10	485.83			
6	54.32	2.67	48.58	5.74	607.04	582.135	27.14	1012.77	817.09	627.23	600.72	294.35			
7	54.23	1.90	48.02	6.21	584.80	555.84	18.42	968.05	872.07	598.13	664.59	197.32			
RADIAL POSITION	REL T/LEFT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	EXIT ABS VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL VELOCITY	LOSS COEFFICIENT	REL TURN ANGLE	LOSS COEFFICIENT	REL TURN ANGLE			
1	61.14	46.56	57.52	3.62	730.42	730.42	501.19	522.31	0.033	5.18	0.033	5.18			
2	56.33	38.72	57.18	-0.85	784.51	784.51	610.91	489.86	0.034	8.90	0.024	8.90			
3	49.76	40.10	52.85	-3.09	825.57	825.57	631.41	531.77	0.024	12.16	0.024	12.16			
4	46.59	41.40	46.10	0.49	751.22	751.22	593.06	522.93	0.021	12.70	0.021	12.70			
5	39.17	44.10	34.70	4.47	799.43	799.43	571.71	554.10	0.016	17.25	0.016	17.25			
6	28.54	47.99	16.84	11.70	817.09	817.09	627.23	600.72	0.020	25.78	0.020	25.78			
7	19.77	50.44	10.70	9.07	872.07	872.07	598.13	664.59	0.020	34.47	0.020	34.47			
RADIAL POSITION	ROTOR SPD AT EXIT	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	POLY MOMEN RISE/ MEAS Y RISE	STAI PRESS COEFF	CHI							
1	1453.43	0.593	1.468	0.788	0.459	0.459	0.301	0.421							
2	1424.21	0.615	1.462	0.926	0.407	0.407	0.301	0.421							
3	1281.38	0.635	1.348	0.926	0.438	0.438	0.301	0.421							
4	1141.01	0.653	1.217	0.888	0.450	0.450	0.301	0.421							
5	997.35	0.601	1.076	0.895	0.477	0.477	0.301	0.421							
6	838.27	0.560	0.935	0.929	0.511	0.511	0.301	0.421							
7	780.09	0.539	0.892	0.988	0.531	0.531	0.301	0.421							
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS RATIO	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	ROTOR DATA								
1	1438.57	0.608	0.866	1.4310	0.033	0.7708	0.786	1.7162	1.7389	1.7583					
2	1406.80	0.625	0.935	1.4610	0.034	0.8058	0.811	0.8402	0.8623	0.8698					
3	1277.85	0.706	0.836	1.6120	0.024	0.8612	0.8718	0.8519	0.8726	0.9010					
4	1149.87	0.681	0.743	1.7730	0.021	0.8802	0.8888	0.999	Discharge Valve Setting=	8.0					
5	1019.93	0.692	0.641	1.9640	0.016	0.9204	0.9261	218.3							
6	895.07	0.709	0.544	2.2480	0.020	0.9232	0.9261								
7	861.91	0.738	0.520	2.3470	0.020	0.9232	0.9261								
RADIAL POSITION	PERCENT IMMERSE/STICH	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	OVERALL PERFORMANCE SUMMARY									
1	5.0000	1.774	1.774	1.233	1.233										
2	10.0000	1.816	1.791	1.225	1.225										
3	30.0000	1.786	1.764	1.186	1.186										
4	50.0000	1.721	1.700	1.177	1.177										
5	70.0000	1.720	1.695	1.179	1.179										
6	90.0000	1.747	1.705	1.174	1.174										
7	95.0000	1.787	1.486	1.182	1.182										

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

STATOR BLADE ROW - NASA TASK IV-B																						
BLADE ELEMENT PERFORMANCE RESULTS																						
POINT NUMBER 16										DATE 10/ 7/1970												
RADIAL POSITION	RFL INLET FLOW ANG	ARS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN	INCID ANG LN	INCID ANG SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	RADIAL POSITION	PEL EXIT FLOW ANG	ARS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	48.14	39.73	39.47	8.67	713.80	769.21	531.58	476.36	476.36	531.58	476.36	2	0.44	0.44	-11.13	11.27	47.69	594.35	594.33	594.33	4.58	4.58
2	39.73	39.73	39.11	0.62	825.68	825.68	491.67	591.54	591.54	491.67	591.54	3	0.94	0.94	-10.10	11.04	36.79	602.92	602.93	602.93	9.92	9.92
3	39.97	39.97	39.81	0.80	795.01	795.01	530.30	632.60	632.60	530.30	632.60	4	-0.14	-0.14	8.73	8.73	40.11	617.44	617.44	617.44	-1.46	-1.46
4	40.60	40.60	39.80	0.80	812.44	812.44	516.77	603.01	603.01	516.77	603.01	5	-0.93	-0.93	-8.75	7.82	41.53	585.08	585.08	585.08	-9.50	-9.50
5	41.91	41.91	40.86	1.05	812.44	812.44	541.04	602.72	602.72	541.04	602.72	6	-0.80	-0.80	-9.10	8.30	42.71	582.52	582.52	582.52	-8.09	-8.09
6	44.84	44.84	42.22	2.62	874.62	874.62	579.67	582.99	582.99	579.67	582.99	7	1.48	1.48	-10.58	12.06	43.35	561.26	561.26	561.26	14.49	14.49
7	47.24	47.24	42.76	4.48	472.68	472.68	637.28	589.36	589.36	637.28	589.36		1.92	1.92	-12.36	10.44	42.16	472.68	472.68	472.68	-15.88	-15.88

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	COEFFICIENT LOSS	TOT PRESS LOSS PARAM	EFFICIENCY	ABR EFFICIENCY	POLY MOMEN RISEZ MEAS T RISE	STAT PRESS RISE COEFF
1	0.524	0.490	0.501	1.248	1.5230	0.127	0.042	1.0153	1.0153	0.290	0.290
2	0.651	0.501	0.518	1.018	1.5440	0.038	0.012	0.8248	0.8248	0.298	0.298
3	0.707	0.518	0.493	0.976	1.6310	0.038	0.012	0.7756	0.7756	0.312	0.312
4	0.685	0.493	0.493	0.969	1.7420	0.027	0.008	0.9334	0.9334	0.401	0.401
5	0.704	0.493	0.474	0.966	1.9800	0.037	0.010	0.3160	0.3160	0.415	0.415
6	0.719	0.474	0.398	0.960	2.0510	0.059	0.014	0.7757	0.7757	0.387	0.387
7	0.760	0.398		0.802	2.0980	0.098	0.023	0.5701	0.5701	0.361	0.361

OVERALL PERFORMANCE SUMMARY									
STATOR DATA					STATOR DATA				
RADIAL POSITION	PERCENT DEVIATION	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	PERFORMANCE PARAMETERS	FIXED INST. FIXED INST.	TRAV. INST.	DISCHARGE VALVE SETTING	WEIGHT FLOW
1	5.0000	1.001	0.997	0.973	Total Pressure Ratio =	1.7162	0.9869	8.0	0.9764
2	10.0000	0.980	1.005	0.990	Polytropic Efficiency =	0.8519	0.9744		0.8016
3	30.0000	0.967	0.997	0.989	Percent Design Speed =	99.9			
4	50.0000	0.990	1.003	0.993	Cor. Nozzle Weight Flow =	218.3			
5	70.0000	0.986	1.004	0.990	IE Check Flow/Noz.Flow =	0.9818			0.9771
6	90.0000	0.958	1.003	0.983	Assumed IE Flow Coeff. =	0.9500			0.9350
7	95.0000	0.889	0.994	0.968					

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

109970		ROTOR BLADE ROW - NASA TASK IV-B										
		BLADE ELEMENT PERFORMANCE RESULTS					DATE 10/ 7/1970					
		POINT NUMBER 18					READING NUMBER 645					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCHD ANG MN CHBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL	
1	65.16	0.74	61.28	4.88	642.04	1579.52	637.75	8.27	1443.17	8.27	1443.17	
2	65.10	-0.09	60.25	4.85	663.00	1570.10	660.53	-0.99	1423.25	-0.99	1423.25	
3	61.52	1.02	57.07	4.95	687.75	1481.95	687.63	12.19	1267.43	12.19	1267.43	
4	58.56	2.46	53.90	4.46	686.82	1305.01	684.04	29.40	1110.05	29.40	1110.05	
5	55.84	2.98	50.80	4.54	674.69	1173.99	664.74	34.61	961.38	34.61	961.38	
6	53.09	2.88	48.58	4.51	631.66	1024.12	605.87	30.43	806.69	30.43	806.69	
7	54.19	1.82	46.02	6.17	585.40	968.13	556.43	17.71	771.30	17.71	771.30	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	60.87	44.49	57.52	3.35	726.76	1063.93	517.35	508.16	928.44	508.16	928.44	
2	56.24	35.66	57.18	-0.24	768.65	1143.68	623.27	447.20	957.68	447.20	957.68	
3	51.63	39.20	52.85	-1.22	792.33	989.08	613.96	500.74	775.36	500.74	775.36	
4	47.44	39.74	46.10	1.34	778.13	894.57	597.94	497.08	651.22	497.08	651.22	
5	38.23	41.95	34.70	4.23	806.01	770.87	596.80	536.46	482.07	536.46	482.07	
6	27.70	46.02	16.84	10.86	833.85	658.58	572.51	593.24	300.61	593.24	300.61	
7	17.41	48.62	10.70	6.74	910.07	638.87	594.20	674.39	188.34	674.39	188.34	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHI						
1	1451.44	0.595	1.463	0.811	0.436	-0.403						
2	1422.24	0.616	1.458	0.944	0.369	0.409						
3	1275.62	0.641	1.343	0.893	0.419	0.442						
4	1139.45	0.640	1.215	0.874	0.424	0.500						
5	995.29	0.627	1.092	0.898	0.454	0.588						
6	837.12	0.585	0.948	0.945	0.484	0.592						
7	789.00	0.539	0.892	1.068	0.491	0.548						
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN MEAS	RISE	STAT PRESS RISE COEFF		
1	1434.60	0.608	0.890	1.4330	0.187	0.032	0.7732	0.7901	0.287	0.287		
2	1404.88	0.654	0.973	1.4610	0.157	0.029	0.8061	0.8206	0.289	0.289		
3	1276.10	0.679	0.847	1.6120	0.114	0.022	0.8627	0.8728	0.346	0.346		
4	1144.30	0.671	0.763	1.7730	0.105	0.020	0.8797	0.8880	0.432	0.432		
5	1018.53	0.699	0.669	1.9680	0.079	0.016	0.9124	0.9250	0.537	0.537		
6	893.95	0.727	0.574	2.2480	0.101	0.020	0.9179	0.9237	0.648	0.648		
7	860.73	0.796	0.559	2.3470	0.090	0.018	0.9347	0.9395	0.633	0.633		
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY						
1	5.0000	1.710	1.233	1.736	1.231	BLADE DATA Rotor Data						
2	10.0000	1.763	1.205	1.742	1.213	FIXED INST. FIXED INST. TRAV. INST.						
3	30.0000	1.725	1.195	1.716	1.177	1.6796 1.6996 1.7180						
4	50.0000	1.681	1.176	1.660	1.144	0.8433 0.8641 0.8904						
5	70.0000	1.699	1.171	1.666	1.171	0.8543 0.8738 0.8964						
6	90.0000	1.700	1.168	1.664	1.175	Percent Design Speed = 99.7 Discharge Valve Setting= 9.0						
7	95.0000	1.779	1.183	1.743	1.178	Cor. Nozzle Weight Flow= 220.7						
IE Check Flow/Noz.Flow = 0.9437 TE Check Flow/Noz.Flow = 0.9745 Assumed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500												

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

100970		STATOR BLADE ROW - NASA TASK IV-B													
RADIAL POSITION		BLADE ELEMENT PERFORMANCE RESULTS													
		POINT NUMBER	18	INCID ANG	HN	CHBR LN	INCID ANG	LE	ANGLE	CHBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
		READING NUMBER	645	DATE	10/ 7/1970										
1	36.65	39.11	-2.46	0.06	39.01	792.47	603.17	491.36	510.35	488.85	499.36	488.85	499.36	488.85	499.36
2	38.94	39.80	-0.86	0.06	39.80	782.55	608.02	491.23	510.35	488.85	499.36	488.85	499.36	488.85	499.36
3	39.73	40.86	-1.13	0.56	42.22	822.20	630.22	523.82	523.82	523.82	523.82	523.82	523.82	523.82	523.82
4	42.78	42.22	0.56	2.52	42.78	849.00	618.56	572.45	572.45	572.45	572.45	572.45	572.45	572.45	572.45
5	45.28	42.76	2.52		45.28	917.55	640.42	646.68	646.68	646.68	646.68	646.68	646.68	646.68	646.68
6															
7															
RADIAL POSITION		REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	0.71	-0.08	-11.13	11.05	46.14	588.32	588.32	-0.80	-0.80	588.32	588.32	-0.80	-0.80	-0.80	-0.80
2	0.71	-0.08	-10.10	10.81	35.94	597.40	597.40	7.43	7.43	597.40	597.40	7.43	7.43	7.43	7.43
3	0.71	-0.08	-8.87	8.30	39.64	612.29	612.29	-6.09	-6.09	612.29	612.29	-6.09	-6.09	-6.09	-6.09
4	0.71	-0.08	-8.75	7.45	40.23	588.40	588.40	-13.32	-13.32	588.40	588.40	-13.32	-13.32	-13.32	-13.32
5	0.71	-0.08	-9.10	8.37	40.47	598.20	598.20	-7.65	-7.65	598.20	598.20	-7.65	-7.65	-7.65	-7.65
6	0.71	-0.08	-10.58	11.57	41.80	614.52	614.52	10.56	10.56	614.52	614.52	10.56	10.56	10.56	10.56
7	0.71	-0.08	-12.36	11.04	46.80	535.36	535.36	-12.32	-12.32	535.36	535.36	-12.32	-12.32	-12.32	-12.32
RADIAL POSITION		ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DEV ANG TE	TURN ANGLE	LOSS COEFFICIENT	LOSS PARAM	POLY MDHEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CH1		
1	0.591	0.487	1.5230	1.5230	1.197	11.05	46.14	0.124	0.041	0.9335	0.268	0.406	0.285		
2	0.658	0.499	1.5440	1.5440	0.990	10.81	35.94	0.035	0.011	0.8220	0.283	0.395	0.303		
3	0.679	0.516	1.6310	1.6310	0.995	8.30	39.64	0.038	0.012	0.7864	0.289	0.422	0.313		
4	0.675	0.497	1.7420	1.7420	0.948	7.45	40.23	0.022	0.006	0.9231	0.275	0.432	0.402		
5	0.715	0.507	1.6800	1.6800	0.990	8.37	40.47	0.029	0.008	0.8265	0.392	0.443	0.422		
6	0.741	0.521	2.0510	2.0510	0.990	11.57	41.80	0.047	0.012	0.8270	0.363	0.434	0.394		
7	0.803	0.451	2.0980	2.0980	0.833	11.04	46.80	0.087	0.021	0.5819	0.340	0.584	0.375		
RADIAL POSITION		ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY	DEV ANG TE	TURN ANGLE	LOSS COEFFICIENT	LOSS PARAM	POLY MDHEN RISE/ EFFICIENCY	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CH1		
1	5.0000	0.995	0.924	0.924	0.974	11.05	46.14	1.000	1.000	0.974	0.9621	0.9500	0.9550		
2	10.0000	0.982	1.003	1.003	0.991	10.81	35.94	1.000	1.000	0.991	0.9882	0.9774	0.9774		
3	30.0000	0.973	0.995	0.995	0.990	8.30	39.64	1.000	1.000	0.990	0.9759	0.8169	0.8169		
4	50.0000	0.999	1.003	1.003	0.992	7.45	40.23	1.000	1.000	0.992	Discharge Valve Setting= 9.0				
5	70.0000	0.993	1.003	1.003	0.992	8.37	40.47	1.000	1.000	0.992	99.7				
6	90.0000	0.969	1.006	1.006	0.985	11.57	41.80	1.000	1.000	0.985	250.7				
7	95.0000	0.887	0.994	0.994	0.969	11.04	46.80	1.000	1.000	0.969					

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 1.6796 0.9882 0.9774
 0.8543 0.9759 0.8169

PERFORMANCE PARAMETERS
 Total Pressure Ratio =
 Polytropic Efficiency =
 Percent Design Speed = 99.7
 Cor. Nozzle Weight Flow = 250.7

IF Check Flow/Noz.Flow = 0.9745 TE Check Flow/Noz.Flow = 0.9621
 Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9550

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Continued)

100970

ROTOR BLADE ROW - NASA TASK IV-B													
BLADE ELEMENT PERFORMANCE RESULTS DATE 10/ 7/1970													
POINT NUMBER 19 READING NUMBER 646													
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL
1	65.94	0.33	61.28	4.66	650.95	1568.11	646.65	3.77	1448.57	3.77	1448.57	3.77	1448.57
2	64.76	0.23	60.25	4.51	672.20	1571.47	669.68	2.69	1420.45	2.69	1420.45	2.69	1420.45
3	61.90	-0.03	57.07	4.53	692.55	1456.03	692.54	-0.36	1280.78	-0.36	1280.78	-0.36	1280.78
4	58.69	1.82	53.90	4.79	682.87	1310.35	680.40	21.59	1118.96	21.59	1118.96	21.59	1118.96
5	55.90	3.08	50.80	4.70	670.52	1171.33	660.57	35.53	941.08	35.53	941.08	35.53	941.08
6	53.91	1.83	48.58	5.23	624.01	1029.07	598.95	19.13	818.52	19.13	818.52	19.13	818.52
7	53.53	0.83	48.02	5.51	607.23	989.36	577.39	8.36	781.14	8.36	781.14	8.36	781.14
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG TE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	69.74	42.92	57.52	3.22	724.80	1084.40	529.53	492.46	945.04	492.46	945.04	492.46	945.04
2	54.78	34.79	57.18	-0.40	772.04	1155.98	632.74	435.59	966.17	435.59	966.17	435.59	966.17
3	50.98	37.74	52.85	-1.87	804.18	1010.07	635.89	492.18	784.71	492.18	784.71	492.18	784.71
4	47.04	37.87	46.10	0.94	786.80	911.13	620.63	482.65	666.56	482.65	666.56	482.65	666.56
5	38.94	40.97	34.70	4.24	808.84	785.33	607.92	527.97	491.19	527.97	491.19	527.97	491.19
6	28.17	44.75	16.84	11.33	834.73	676.67	585.80	580.75	313.66	580.75	313.66	580.75	313.66
7	18.85	47.18	10.70	8.15	803.84	656.95	606.28	654.34	286.93	654.34	286.93	654.34	286.93
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	SOLIDITY	TOT PRESS LOSS PARAM	EFFICIENCY	POLY MOMEN RISE/ EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CHI
1	152.34	0.604	1.473	0.819	0.191	1.4310	0.033	0.7596	0.7766	0.7766	0.269	0.424	0.385
2	123.14	0.625	1.461	0.945	0.154	1.4610	0.029	0.8031	0.8172	0.8172	0.269	0.359	0.387
3	128.42	0.645	1.357	0.918	0.116	1.6120	0.023	0.8536	0.8639	0.8639	0.307	0.411	0.402
4	1140.15	0.636	1.220	0.912	0.106	1.7230	0.020	0.8734	0.8818	0.8818	0.392	0.404	0.460
5	996.61	0.623	1.089	0.920	0.088	1.6640	0.017	0.9088	0.9150	0.9150	0.541	0.438	0.541
6	837.64	0.577	0.952	0.978	0.105	2.2480	0.021	0.9131	0.9192	0.9192	0.613	0.468	0.567
7	789.50	0.560	0.913	1.050	0.089	2.3470	0.018	0.9322	0.9371	0.9371	0.627	0.481	0.548
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TEMP RATIO	PERCENT IMMERSION	TRAV TOY PRESS RATIO	FIXED TOY PRESS RATIO	TEMP RATIO	PERCENT IMMERSION	TRAV TOY PRESS RATIO	FIXED TOY PRESS RATIO	TEMP RATIO	PERCENT IMMERSION
1	1437.50	0.608	0.909	1.686	5.0000	1.226	1.212	1.686	5.0000	1.226	1.212	1.686	5.0000
2	1405.75	0.660	0.988	1.700	10.0000	1.195	1.186	1.700	10.0000	1.195	1.186	1.700	10.0000
3	1276.69	0.692	0.869	1.673	30.0000	1.188	1.170	1.673	30.0000	1.188	1.170	1.673	30.0000
4	1149.01	0.681	0.788	1.639	50.0000	1.171	1.167	1.639	50.0000	1.171	1.167	1.639	50.0000
5	1112.17	0.703	0.683	1.670	70.0000	1.167	1.165	1.670	70.0000	1.167	1.165	1.670	70.0000
6	994.41	0.729	0.591	1.670	90.0000	1.165	1.162	1.670	90.0000	1.165	1.162	1.670	90.0000
7	861.27	0.790	0.574	1.176	95.0000	1.166	1.162	1.176	95.0000	1.166	1.162	1.176	95.0000

OVERALL PERFORMANCE SUMMARY

STAGE DATA		ROTOR DATA		ROTOR DATA	
FIXED INST.	TRAV. INST.	FIXED INST.	TRAV. INST.	FIXED INST.	TRAV. INST.
1.0451	1.0644	1.0451	1.0644	1.0451	1.0644
0.8369	0.8570	0.8369	0.8570	0.8369	0.8570
0.8479	0.8678	0.8479	0.8678	0.8479	0.8678
Percent Design Speed = 99.9		Discharge Valve Setting = 10.0		Cor. Nozzle Weight Flow = 221.8	

IE Check Flow/Noz.Flow = 0.9404 TE Check Flow/Noz.Flow = 0.9750
 Acruamed IE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

TABLE XVII - TASK II STAGE UNDISTORTED INLET BLADE ELEMENT DATA (Concluded)

100970		STATOR BLADE ROW - NASA TASK IV-B												
POINT NUMBER 19		BLADE ELEMENT PERFORMANCE RESULTS										DATE 10/ 7/1970		
READING NUMBER 646														
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET-ARS VELOCITY	INLET REL VELOCITY	INLET-AX VELOCITY	INLET ABS TANG VEL	INLET-ARS VELOCITY	INLET REL VELOCITY	INLET-AX VELOCITY	INLET ABS TANG VEL	
1	44.54	35.79	39.47	5.07	754.51	705.13	502.59	612.04	494.58	441.21	637.09	490.83	476.96	
2	37.61	39.01	39.11	-3.32	804.46	826.57	631.43	612.04	494.58	441.21	637.09	490.83	476.96	
3	37.07	39.80	39.80	-2.73	792.28	826.57	642.52	633.74	560.40	627.45	631.43	515.53	515.53	
4	38.74	40.86	40.86	-0.73	852.46	914.14	654.08	654.08	627.45	627.45	633.74	633.74	633.74	
5	41.49	42.22	42.22	1.05	914.14									
6	43.81	42.76	42.76											
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT-ARS VELOCITY	EXIT REL VELOCITY	EXIT-AX VELOCITY	EXIT ABS TANG VEL	EXIT-ARS VELOCITY	EXIT REL VELOCITY	EXIT-AX VELOCITY	EXIT ABS TANG VEL	
1	-0.10	0.56	-11.13	11.03	44.64	587.25	587.25	587.25	-0.98	587.25	587.25	587.25	587.25	
2	0.56	0.56	-10.10	10.66	35.23	606.02	606.02	606.02	5.89	606.02	606.02	606.02	606.02	
3	-0.69	8.18	-8.87	8.18	38.30	621.59	621.59	621.59	-7.48	621.59	621.59	621.59	621.59	
4	-1.39	-8.75	-8.75	7.36	38.46	595.05	595.05	595.05	-14.46	595.05	595.05	595.05	595.05	
5	-1.10	-9.10	-9.10	6.00	39.84	617.62	617.62	617.62	-11.79	617.62	617.62	617.62	617.62	
6	0.45	-10.58	-10.58	11.03	41.03	659.54	659.54	659.54	5.22	659.54	659.54	659.54	659.54	
7	-1.41	-12.36	-12.36	10.92	45.12	594.20	594.20	594.20	-14.48	594.20	594.20	594.20	594.20	
RADIAL POSITION	POTOR SPD AT INLET	INLET ARS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DEV ANG TE	TURN ANGLE	EXIT-ARS VELOCITY	EXIT REL VELOCITY	EXIT-AX VELOCITY	EXIT ABS TANG VEL	EXIT-ARS VELOCITY	EXIT REL VELOCITY	EXIT-AX VELOCITY	EXIT ABS TANG VEL
1	0.590	0.643	0.692	0.975	1.568	1.540	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
2	0.590	0.643	0.692	0.975	1.568	1.540	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
3	0.590	0.643	0.692	0.975	1.568	1.540	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
4	0.590	0.643	0.692	0.975	1.568	1.540	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
5	0.590	0.643	0.692	0.975	1.568	1.540	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
6	0.590	0.643	0.692	0.975	1.568	1.540	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
7	0.590	0.643	0.692	0.975	1.568	1.540	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ARS MACH NO	EXIT REL MACH NO	LOSS COEFFICIENT	LOSS PARAM	ADR EFFICIENCY	POLY MOMEN RISE/ RISE	STAI PRESS RISE COEFF	DIFFUSION FACTOR	CH1				
1	0.489	0.508	0.526	0.037	0.012	0.8334	0.8334	0.248	0.398	0.264				
2	0.489	0.508	0.526	0.037	0.012	0.8334	0.8334	0.248	0.398	0.264				
3	0.489	0.508	0.526	0.037	0.012	0.8334	0.8334	0.248	0.398	0.264				
4	0.489	0.508	0.526	0.037	0.012	0.8334	0.8334	0.248	0.398	0.264				
5	0.489	0.508	0.526	0.037	0.012	0.8334	0.8334	0.248	0.398	0.264				
6	0.489	0.508	0.526	0.037	0.012	0.8334	0.8334	0.248	0.398	0.264				
7	0.489	0.508	0.526	0.037	0.012	0.8334	0.8334	0.248	0.398	0.264				
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFF	LOSS PARAM	ADR EFFICIENCY	POLY MOMEN RISE/ RISE	STAI PRESS RISE COEFF				
1	5.0000	0.991	0.991	1.000	1.000	0.8334	0.8334	0.248	0.398	0.264				
2	10.0000	0.983	0.983	1.000	1.000	0.8334	0.8334	0.248	0.398	0.264				
3	30.0000	0.975	0.975	1.000	1.000	0.8334	0.8334	0.248	0.398	0.264				
4	57.0000	0.968	0.968	1.000	1.000	0.8334	0.8334	0.248	0.398	0.264				
5	70.0000	0.962	0.962	1.000	1.000	0.8334	0.8334	0.248	0.398	0.264				
6	90.0000	0.975	0.975	1.000	1.000	0.8334	0.8334	0.248	0.398	0.264				
7	92.0000	0.888	0.888	0.925	0.925	0.8334	0.8334	0.248	0.398	0.264				

OVERALL PERFORMANCE SUMMARY
 STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6451 0.9884 0.9776
 Polytropic Efficiency = 0.8479 0.9755 0.8067
 Percent Design Speed = 99.9 Discharge Valve Setting= 10.0
 Cor. Nozzle Weight Flow= 221.8

IE Check Flow/Noz.Flow = 0.9750 TE Check Flow/Noz.Flow = 0.9584
 Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

APPENDIX G

LISTING OF TASK II STAGE RADIAL
DISTORTION BLADE ELEMENT DATA

TABLE XVIII - TASK 11 STAGE RADIAL DISTORTION BLADE ELEMENT DATA

INLET GUIDE VANES - NASA TASK IV-B		BLADE ELEMENT PERFORMANCE RESULTS										
		POINT NUMBER	22	SPARING NUMBER	439	DATE	9/29/1970					
PARTIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	LN INKID ANG	HM CHBR LN SUCT SURE	INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ARS YAWG VEL	INLET REL YAWG VEL	
1	0.27	0.27	0.	0.27	0.	386.74	386.74	386.74	386.74	1.92	1.92	
2	0.05	0.42	0.	0.42	0.	393.33	393.33	393.33	393.33	2.74	2.74	
3	0.10	0.10	0.	0.10	0.	726.76	726.76	726.76	726.76	1.22	1.22	
4	0.19	0.19	0.	0.19	0.	764.73	764.73	764.73	764.73	2.19	2.19	
5	0.33	0.33	0.	0.33	0.	762.11	762.11	762.11	762.11	1.67	1.67	
6	1.03	1.03	0.	1.03	0.	761.25	761.25	761.25	761.25	13.70	13.70	
7												
PARTIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	LN INKID ANG	HM CHBR LN SUCT SURE	INCID ANG	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ARS YAWG VEL	EXIT REL YAWG VEL	
1	0.90	0.90	0.	0.90	0.	530.94	530.94	530.94	530.94	8.76	8.76	
2	1.23	1.23	0.	1.23	0.	535.22	535.22	535.22	535.22	11.70	11.70	
3	1.98	1.98	0.	1.98	0.	616.21	616.21	616.21	616.21	21.33	21.33	
4	0.17	0.17	0.	0.17	0.	726.11	726.11	726.11	726.11	2.10	2.10	
5	0.17	0.17	0.	0.17	0.	700.56	700.56	700.56	700.56	14.21	14.21	
6	0.91	0.91	0.	0.91	0.	637.45	637.45	637.45	637.45	6.89	6.89	
7	0.54	0.54	0.	0.54	0.	590.61	590.61	590.61	590.61	5.41	5.41	
PARTIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	TRAV LOSS TR TL PRESS COEFFICIENT	LOSS PARAM	DIFFUSION FACTOR	MOMENT RISES				
1	0.352	0.352	0.352	1.366	0.158	0.060	0.372	MEAS Y RISE				
2	0.357	0.357	0.357	1.358	0.113	0.043	0.372	RISE				
3	0.342	0.342	0.342	1.654	0.461	0.162	0.659	CBEFF				
4	0.680	0.680	0.680	0.996	-0.012	0.004	0.000	0.983				
5	0.719	0.719	0.719	0.908	0.084	0.001	0.091	0.149				
6	0.717	0.717	0.717	0.817	-0.011	0.001	0.171	0.021				
7	0.716	0.716	0.716	0.776	0.061	0.016	0.174	0.314				
							0.231	0.449				
PARTIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY	PERCENT IMAGINATION	PRESS RATIO	TEMP RATIO	OVERALL PERFORMANCE SUMMARY				
1	0.484	0.484	0.484	1.3050	5.0000	0.978	1.011	STAGE DATA				
2	0.488	0.488	0.488	1.3178	16.0000	0.990	0.997	FIXED INST.				
3	0.570	0.570	0.570	1.3610	30.0000	1.036	1.004	IGV DATA				
4	0.676	0.676	0.676	1.4198	50.0000	1.003	1.011	TRAV. INST.				
5	0.650	0.650	0.650	1.5028	70.0000	1.001	1.009	1.3804				
6	0.598	0.598	0.598	1.6460	90.0000	1.003	1.007	0.6753				
7	0.543	0.543	0.543	1.7160	95.0000	0.982	1.005	Discharge Valve Settings=30.0				
								Cor. Nozzle Weight Flow= 215.6				
								Percent Design Speed = 99.9				
								Total Pressure Ratio = 1.0051				
								Polytropic Efficiency = 0.1002				
								Cor. Nozzle Weight Flow= 215.6				
								IE Check Flow/Noz.Flow = 0.9488				
								Assumed IE Flow Coeff. = 0.9900				
								TE Check Flow/Noz.Flow = 0.9580				
								Assumed TE Flow Coeff. = 0.9900				

TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

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ROTOR BLADE ROW - NASA TASK IVER											
BLADE ELEMENT PERFORMANCE RESULTS											
POINT NUMBER 22 READING NUMBER 439 DATE 9/29/1970											
PARTIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHRR LM LE ANGLE	INCID ANG HM CHRR LM	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VFL	INLET REL TANG VFL	INLET AX TANG VFL	INLET REL TANG VFL
1	67.82	0.82	61.28	6.54	593.42	1502.75	589.45	4.44	1448.70	4.44	1448.70
2	67.04	1.11	60.23	6.79	601.28	1535.66	598.64	4.56	1413.33	4.56	1413.33
3	68.27	1.69	57.07	3.20	720.20	1451.78	719.88	21.28	1260.72	21.28	1260.72
4	58.05	0.13	53.90	-1.85	891.39	1446.74	884.61	2.06	1139.51	2.06	1139.51
5	48.94	-0.91	50.80	30.46	862.05	1324.84	850.15	-13.55	1014.40	-13.55	1014.40
6	47.05	-0.45	48.58	11.58	821.54	1180.34	798.87	24.88	847.57	24.88	847.57
7	47.27	-0.37	48.02	10.75	772.56	1104.60	734.65	-4.71	795.10	-4.71	795.10

PARTIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHRR LM TE ANGLE	REL DEV ANG TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VFL	EXIT REL TANG VFL	EXIT AX TANG VFL
1	59.76	33.33	57.12	2.24	8.06	728.02	1205.61	606.44	398.82	606.44	1047.45
2	56.99	30.52	57.18	-0.19	18.04	789.19	1214.68	861.10	389.79	861.10	1017.70
3	51.46	29.44	52.88	13.39	6.82	804.85	1127.65	702.98	396.53	702.98	881.94
4	46.41	24.27	48.10	-0.69	6.64	862.06	1119.07	785.14	353.92	785.14	794.52
5	43.18	33.02	34.70	8.48	6.71	770.53	834.81	642.50	417.53	642.50	602.90
6	19.74	37.34	16.64	2.90	21.31	1019.08	865.67	798.30	606.00	798.30	280.71
7	7.05	39.91	10.70	-3.45	48.22	1189.76	930.47	898.30	734.30	898.30	1111.03

PARTIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VFL RATIO	SOLIDITY COEFFICIENT	LOSS PARAM	EFFICIENCY	POLY NOMEN RISEZ	DIFFUSION FACTOR
1	1454.14	0.544	1.432	1.029	1.4310	0.045	0.19005	0.6799	0.315
2	1424.91	0.552	1.410	1.004	1.4618	0.032	0.12687	0.7832	0.293
3	1262.00	0.672	1.378	0.976	-0.028	0.005	1.0423	1.0394	0.263
4	1141.57	0.849	1.378	0.844	0.136	0.027	0.7468	0.7572	0.295
5	997.84	0.818	1.261	0.756	0.205	0.038	0.6605	0.6734	0.218
6	838.68	0.776	1.115	1.012	0.147	0.031	0.8269	0.8365	0.233
7	790.47	0.725	1.041	1.026	0.183	0.039	0.8038	0.8136	0.312

PARTIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	TEMP RATIO	FIXED TOY PRESS RATIO	TEMP RATIO	PERCENT DIMENSION	ROTOR DATA
1	1439.28	0.618	1.022	1.187	1.195	1.195	5.0000	FIXED INST, FIXED INST, TRAV, INST.
2	1407.49	0.666	1.052	1.183	1.183	1.183	10.0000	
3	1278.47	0.710	0.992	1.165	1.146	1.146	30.0000	
4	1150.44	0.776	1.006	1.149	1.119	1.119	50.0000	
5	1020.43	0.684	0.785	1.104	1.123	1.123	70.0000	
6	895.51	0.922	0.783	1.139	1.147	1.147	90.0000	
7	832.34	1.106	0.866	1.149	1.147	1.147	95.0000	

OVERALL PERFORMANCE SUMMARY											
SPACE DATA				ROTOR DATA				ROTOR DATA			
FIXED INST, FIXED INST, TRAV, INST.				1.3804				1.4479			
Total Pressure Ratio =				0.6602				0.7632			
Adiabatic Efficiency =				0.6753				0.7752			
Polytropic Efficiency =				99.9				Discharge Valve Setting= 30.0			
Percent Design Speed =				215.6				Cor. Nozzle Weight Flow =			

LE Check Flow/Noz.Flow =		0.9579	
Assumed LE Flow Coeff. =		0.9850	
TE Check Flow/Noz.Flow =		0.9343	
Assumed TE Flow Coeff. =		0.9700	

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INLET GUIDE VANES - NASA TASK IV#B		BLADE ELEMENT PERFORMANCE RESULTS											
		POINT NUMBER	23	READING NUMBER	440	DATE	9/29/1970						
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET AX TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL
1	0.13	0.13	0.	0.13	0.13	339.93	339.93	339.93	0.78	0.78	0.78	0.78	0.78
2	0.51	0.51	0.	0.51	0.51	353.21	353.21	353.19	3.13	3.13	3.13	3.13	3.13
3	0.07	0.07	0.	-0.07	0.	395.08	395.08	395.03	0.45	0.45	0.45	0.45	0.45
4	-0.30	-0.30	0.	-0.30	0.	640.26	640.26	639.97	-3.40	-3.40	-3.40	-3.40	-3.40
5	0.10	0.10	0.	0.10	0.	708.08	708.08	707.32	3.19	3.19	3.19	3.19	3.19
6	1.25	1.25	0.	1.25	0.	698.11	698.11	696.96	15.15	15.15	15.15	15.15	15.15
7	0.77	0.77	0.	0.77	0.	697.335	697.335	626.70	9.41	9.41	9.41	9.41	9.41
RADIAL POSITION	MEL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT AX TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	-5.48	-5.48	0.	-5.48	5.51	447.01	447.01	444.93	-42.71	-42.71	-42.71	-42.71	-42.71
2	-3.24	-3.24	0.	-3.24	3.75	468.60	468.60	467.84	-26.49	-26.49	-26.49	-26.49	-26.49
3	-0.45	-0.45	0.	-0.45	0.39	579.36	579.36	579.06	-4.58	-4.58	-4.58	-4.58	-4.58
4	0.43	0.43	0.	0.43	-0.73	664.85	664.85	662.82	4.93	4.93	4.93	4.93	4.93
5	-0.82	-0.82	0.	-0.82	0.92	681.60	681.60	675.23	-9.70	-9.70	-9.70	-9.70	-9.70
6	-1.74	-1.74	0.	-1.74	2.98	621.47	621.47	606.00	-18.39	-18.39	-18.39	-18.39	-18.39
7	-1.84	-1.84	0.	-1.84	2.61	581.64	581.64	563.15	-16.01	-16.01	-16.01	-16.01	-16.01
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL	TRAV LOSS TR TL	LOSS PARAM	DIFFUSION CH1	FACTOR	MEAS T RISE	MEAS Y RISE	MEAS Z RISE	STAY PRESS	STAY PRESS
1	0.307	0.307	0.307	1.309	0.229	0.087		-0.266	-0.266	-0.266	-0.266	-0.266	-0.266
2	0.319	0.319	0.319	1.325	0.178	0.067		-0.295	-0.295	-0.295	-0.295	-0.295	-0.295
3	0.358	0.358	0.358	1.466	-0.313	-0.115		-0.463	-0.463	-0.463	-0.463	-0.463	-0.463
4	0.593	0.593	0.593	1.836	0.075	0.026		-0.043	-0.043	-0.043	-0.043	-0.043	-0.043
5	0.951	0.951	0.951	0.955	0.002	-0.801		0.043	0.043	0.043	0.043	0.043	0.043
6	0.651	0.651	0.651	0.869	-0.005	-0.802		0.124	0.124	0.124	0.124	0.124	0.124
7	0.650	0.650	0.650	0.805	0.054	0.016		0.178	0.178	0.178	0.178	0.178	0.178
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY	FIXED TOT	FIXED TOT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
1	0.403	0.403	0.403	1.3090	1.000	1.000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000
2	0.424	0.424	0.424	1.3170	1.000	1.000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000	10.0000
3	0.534	0.534	0.534	1.3610	1.000	1.000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000	30.0000
4	0.614	0.614	0.614	1.4190	1.000	1.000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000	50.0000
5	0.632	0.632	0.632	1.5020	1.000	1.000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000	70.0000
6	0.575	0.575	0.575	1.6460	1.000	1.000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000	90.0000
7	0.536	0.536	0.536	1.7160	1.000	1.000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000	95.0000
OVERALL PERFORMANCE SUMMARY													
STAGE DATA													
FIXED INST. TRAV. INST. = 1.7326 0.9989													
Total Pressure Ratio = 0.7740													
Polytropic Efficiency =													
Percent Design Speed = 99.9 Discharge Valve Setting=6.0													
Cor. Nozzle Weight Flow= 204.1													
IE Check Flow/Noz.Flow = 0.9488 TE Check Flow/Noz.Flow = 0.9580													
Assumed IE Flow Coeff. = 0.9900 Assumed TE Flow Coeff. = 0.9850													

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TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IVeB														
BLADE ELEMENT PERFORMANCE RESULTS														
POINT NUMBER 23 READING NUMBER 440 DATE 9/29/1970														
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	71.93	-5.04	61.28	10.65	493.94	1573.79	488.139	43.10	1491.13	520.94	1541.97	518.32	26.64	1451.44
2	70.35	-2.94	60.25	10.10	667.07	1449.13	667.05	4.57	1286.47	778.09	1477.46	775.65	4.82	1136.66
3	55.69	0.36	53.90	1.79	855.24	1501.94	814.09	9.25	1007.02	790.65	1164.93	759.09	16.52	859.14
4	48.41	1.25	48.58	0.17	756.16	1103.13	718.92	15.68	806.09	933.26	601.17	561.38	64.63	167.60
5	48.27	1.25	48.02	0.25	870.17	710.12	322.98	807.46	631.71	859.63	771.91	410.62	754.54	652.85
6	62.92	68.20	57.52	5.74	858.19	879.35	588.23	624.81	523.57	855.93	870.90	643.11	563.94	586.41
7	57.83	61.44	57.18	0.65	834.54	762.72	608.08	566.39	453.96	855.10	619.62	552.26	641.63	253.82
8	48.01	46.73	52.85	-4.84	933.26	601.17	561.38	64.67	167.60					
9	42.36	41.25	46.10	3.74										
10	36.74	42.97	34.70	2.04										
11	24.68	49.28	16.84	7.84										
12	16.62	51.06	10.70	5.92										

RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL	DIFFUSION FACTOR
1	1454.03	0.446	1.425	0.661	0.737
2	1424.80	0.473	1.399	0.792	0.672
3	1281.91	0.621	1.349	0.882	0.528
4	1141.48	0.729	1.291	0.829	0.483
5	997.77	0.780	1.231	0.747	0.528
6	838.62	0.746	1.199	0.726	0.598
7	790.41	0.711	1.159	0.781	0.599

RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	POLY MOREN RISE	STAY PRESS
1	1439.17	0.690	1.430	0.6800	0.7100
2	1407.39	0.698	1.4610	0.7331	0.7583
3	1278.38	0.731	1.6120	0.9330	0.9391
4	1150.35	0.740	1.730	0.8279	0.8404
5	1020.35	0.727	1.640	0.8835	0.8776
6	895.45	0.746	2.2480	0.8851	0.8929
7	852.27	0.790	2.3470	0.8918	0.8992

RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO
1	5.0000	2.178	1.172	1.331	1.331
2	10.0000	2.152	1.116	1.308	1.308
3	30.0000	1.958	1.129	1.233	1.233
4	50.0000	1.755	1.180	1.199	1.199
5	70.0000	1.649	1.162	1.181	1.181
6	90.0000	1.637	1.172	1.172	1.172
7	95.0000	1.668	1.161	1.172	1.172

STAGE DATA		ROTOR DATA		ROTOR DATA	
FIXED INST.	FIXED INST.	FIXED INST.	FIXED INST.	TRAV.	INST.
1.7326	1.7984	1.7984	1.7984	1.8241	1.8241
0.7599	0.8116	0.7599	0.8116	0.8860	0.8860
0.7740	0.8265	0.7740	0.8265	0.8953	0.8953

PERFORMANCE PARAMETERS	
Total Pressure Ratio =	99.9
Adiabatic Efficiency =	Discharge Valve Setting = 6.0
Polytropic Efficiency =	Cor. Nozzle Weight Flow = 204.1

OVERALL PERFORMANCE SUMMARY	
Percent Design Speed =	99.9
Cor. Nozzle Weight Flow =	204.1
LE Check Flow/Noz.Flow =	0.9780
Assumed LE Flow Coeff. =	0.9850
TE Check Flow/Noz.Flow =	0.9247
Assumed TE Flow Coeff. =	0.9500

100170 **TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)**

STATOR BLADE ROW - NACA TASK IVeB		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER 23		READING NUMBER 440		DATE		9/29/1970			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG	INCID ANG	SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	69.15	29.68	39.47	23.05	867.73	856.44	399.93	810.93	308.80	757.32	810.93
2	62.16	39.11	39.01	23.05	856.44	857.79	589.29	623.08	589.29	623.08	623.08
3	46.60	39.11	39.01	23.05	856.44	857.79	589.29	623.08	589.29	623.08	623.08
4	40.40	40.40	40.40	40.40	850.74	850.74	642.86	557.29	642.86	557.29	557.29
5	40.70	40.70	40.70	40.70	850.74	850.74	642.86	557.29	642.86	557.29	557.29
6	46.10	42.22	42.22	3.88	864.94	864.94	595.87	619.14	595.87	619.14	619.14
7	47.82	42.76	42.76	5.06	905.52	905.52	603.48	666.12	603.48	666.12	666.12
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	11.79	11.13	11.13	0.66	80.94	545.07	504.21	504.21	-105.20	-105.20	
2	11.18	10.10	10.10	1.08	73.35	494.56	485.15	485.15	-95.93	-95.93	
3	9.60	8.67	8.67	0.93	42.99	512.94	512.75	512.75	5.39	5.39	
4	2.46	8.75	8.75	11.21	37.94	579.12	578.17	578.17	24.84	24.84	
5	0.73	9.10	9.10	9.83	39.98	593.37	592.37	592.37	7.52	7.52	
6	1.52	10.58	10.58	12.10	44.58	597.94	595.98	595.98	15.77	15.77	
7	0.65	12.56	12.56	11.71	48.47	507.42	505.61	505.61	-9.70	-9.70	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	COEFFICIENT	LOSS	TOY PRESS	EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF
1	0.688	0.688	0.688	1.633	1.230	0.175	0.357	0.357	0.357	0.197	0.197
2	0.595	0.595	0.595	1.213	1.240	0.172	0.055	0.3883	0.3883	0.226	0.226
3	0.751	0.751	0.751	0.870	1.5310	0.110	0.034	0.6728	0.6728	0.396	0.396
4	0.744	0.744	0.744	0.883	1.7420	0.043	0.012	0.9189	0.9189	0.149	0.149
5	0.743	0.743	0.743	0.921	1.8800	0.036	0.010	0.9782	0.9782	0.472	0.472
6	0.756	0.756	0.756	1.000	2.0510	0.050	0.012	0.9112	0.9112	0.443	0.443
7	0.792	0.792	0.792	0.638	2.0980	0.092	0.022	0.6929	0.6929	0.431	0.431
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	AXIAL VEL RATIO	SOLIDITY	COEFFICIENT	LOSS	TOY PRESS	EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF
1	0.411	0.411	0.411	1.230	1.230	0.175	0.357	0.357	0.357	0.197	0.197
2	0.397	0.397	0.397	1.240	1.240	0.172	0.055	0.3883	0.3883	0.226	0.226
3	0.423	0.423	0.423	0.870	1.5310	0.110	0.034	0.6728	0.6728	0.396	0.396
4	0.486	0.486	0.486	0.883	1.7420	0.043	0.012	0.9189	0.9189	0.149	0.149
5	0.502	0.502	0.502	0.921	1.8800	0.036	0.010	0.9782	0.9782	0.472	0.472
6	0.506	0.506	0.506	1.000	2.0510	0.050	0.012	0.9112	0.9112	0.443	0.443
7	0.427	0.427	0.427	0.638	2.0980	0.092	0.022	0.6929	0.6929	0.431	0.431
RADIAL POSITION	PERCENT IMMERION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS	TOY PRESS	EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF	
1	5.000	0.879	0.934	0.950	1.000	0.175	0.357	0.357	0.357	0.197	
2	14.000	0.877	0.960	0.951	1.000	0.172	0.055	0.3883	0.3883	0.226	
3	30.000	0.827	1.000	0.967	1.000	0.110	0.034	0.6728	0.6728	0.396	
4	50.000	0.983	1.003	0.987	1.000	0.043	0.012	0.9189	0.9189	0.149	
5	70.000	0.995	1.009	0.989	1.000	0.036	0.010	0.9782	0.9782	0.472	
6	90.000	0.982	1.006	0.984	1.000	0.050	0.012	0.9112	0.9112	0.443	
7	95.000	0.915	0.996	0.968	1.000	0.092	0.022	0.6929	0.6929	0.431	

OVERALL PERFORMANCE SUMMARY

SPACE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.7326 0.9734 0.9473
 Polytropic Efficiency = 0.7740 0.9540 0.7863
 Percent Design Speed = 99.9 Discharge Valve Setting = 6.0
 Cor. Nozzle Weight Flow = 204.1
 LE Check Flow/Noz.Flow = 0.9247 TE Check Flow/Noz.Flow = 0.9581
 Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

POINT NUMBER 24		BLADE ELEMENT PERFORMANCE RESULTS		INLET GUIDE VANES I		MASA TASK IV-B				
BLADING NUMBER 441		DATE 9/29/8970								
PARTIAL POSITION	REL INLET FLOW ANG	ARS INLET FLOW ANG	CMBR LM LE ANGLE	INCID ANG MN	INCID ANG CMBR LM	JNCID ANG SUCT SURR	INLET ABS VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	0.44	0.44	0.0	0.44	0.44	0.44	375.06	375.06	2.87	2.87
2	0.39	0.39	0.0	0.39	0.39	0.39	383.16	383.16	2.61	2.61
3	0.67	0.67	0.0	0.67	0.67	0.67	381.46	381.39	2.48	2.48
4	0.06	0.06	0.0	0.06	0.06	0.06	694.24	694.24	1.70	1.70
5	0.19	0.19	0.0	0.19	0.19	0.19	765.35	764.33	1.55	1.55
6	1.32	1.32	0.0	1.32	1.32	1.32	748.46	747.28	1.17	1.17
7	0.82	0.82	0.0	0.82	0.82	0.82	745.02	744.32	1.06	1.06
PARTIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LM TE ANGLE	DEV ANG TE	YURN ANGLE	TRAV LOSS TR YL PRESS COEFFICIENT LOSS PARAM	EXIT ABS VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	1.78	1.78	0.0	1.78	1.38	0.174	487.15	486.87	15.12	15.12
2	1.71	1.71	0.0	1.71	1.32	0.174	499.30	499.30	14.92	14.92
3	1.97	1.97	0.0	1.97	1.64	0.048	603.98	603.24	20.72	20.72
4	0.52	0.52	0.0	0.52	0.58	0.156	716.85	714.45	24.45	24.45
5	0.14	0.14	0.0	0.14	0.33	0.029	700.25	693.77	1.52	1.52
6	0.83	0.83	0.0	0.83	2.15	0.006	685.24	619.61	1.67	1.67
7	1.18	1.18	0.0	1.18	2.30	0.003	588.52	567.89	1.46	1.46
PARTIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	TRAV LOSS TR YL PRESS COEFFICIENT LOSS PARAM	DIFFUSION FACTOR	EXIT ABS VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	0.340	0.340	0.340	1.3090	0.174	0.066	20.286	20.286	0.180	0.180
2	0.347	0.347	0.347	1.308	0.128	0.048	20.291	20.291	0.160	0.160
3	0.346	0.346	0.346	1.582	-0.425	0.156	20.607	20.607	0.141	0.141
4	0.347	0.347	0.347	1.029	0.029	0.010	20.036	20.036	0.177	0.177
5	0.720	0.720	0.720	1.908	-0.006	0.002	0.087	0.087	0.177	0.177
6	0.702	0.702	0.702	0.829	-0.812	0.003	0.142	0.142	0.222	0.222
7	0.699	0.699	0.699	0.763	0.061	0.018	0.220	0.220	0.329	0.329
PARTIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOL IDITY	MOMEN RISE/ MEAS V RISE	STAT PRESS RISE	EXIT ABS VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	0.442	0.442	0.442	1.3090	0.178	0.066	20.178	20.178	0.178	0.178
2	0.454	0.454	0.454	1.3170	0.178	0.066	20.178	20.178	0.178	0.178
3	0.456	0.456	0.456	1.3610	0.178	0.066	20.178	20.178	0.178	0.178
4	0.666	0.666	0.666	1.6190	0.178	0.066	20.178	20.178	0.178	0.178
5	0.649	0.649	0.649	1.5020	0.178	0.066	20.178	20.178	0.178	0.178
6	0.585	0.585	0.585	1.6460	0.178	0.066	20.178	20.178	0.178	0.178
7	0.540	0.540	0.540	1.7160	0.178	0.066	20.178	20.178	0.178	0.178
PARTIAL POSITION	PERCENT DIMENSION	TRAV TOY PRESS RATIO	FIXED TOY PRESS RATIO	TEMP RATIO	FIXED TOY TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA	IGV DATA	TRAV. INST.	TRAV. INST.
1	1.0000	0.987	1.012	0.997	1.000	Total Pressure Ratio =	1.6180	1.0025	0.7786	0.0215
2	1.0000	0.990	1.011	0.998	1.000	Polytropic Efficiency =	0.7786	0.0215		
3	1.0000	1.034	1.004	0.998	1.000	Percent Design Speed =	99.9	Discharge Valve Setting=	10.0	
4	1.0000	1.003	1.011	0.991	1.000	Cor. Nozzle Weight Flow=	212.3			
5	1.0000	1.002	1.012	0.991	1.000	IE Check Flow/Noz.Flow =	0.9559	TE Check Flow/Noz.Flow =	0.9576	
6	1.003	1.003	1.011	0.991	1.000	Assumed LE Flow Coeff. =	0.9900	Assumed TE Flow Coeff. =	0.9850	
7	1.0000	0.993	1.008	0.992	1.000					

OVERALL PERFORMANCE SUMMARY

STAGE DATA

FIXED INST. 1.6180

IGV DATA 1.0025

TRAV. INST. 0.7786

TRAV. INST. 0.0215

Discharge Valve Setting= 10.0

Percent Design Speed = 99.9

Cor. Nozzle Weight Flow= 212.3

IE Check Flow/Noz.Flow = 0.9559

TE Check Flow/Noz.Flow = 0.9576

Assumed LE Flow Coeff. = 0.9900

Assumed TE Flow Coeff. = 0.9850

TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

093070		ROTOR BLADE BDN 2 NASA TASK IV-B										
		BLADE ELEMENT PERFORMANCE RESULTS										
		POINT NUMBER 24 SPADING NUMBER 441 DATE 9/29/1970										
PARTIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	HN CHBR LN	INCID ANG	INLET ARS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS VELOCITY	INLET REL YANG VEL	INLET ABS YANG VEL	
1	69.93	61.63	61.25	8.46		540.92	1567.13	537.14	1551.26	1469.83	1440.33	
2	51.55	68.61	60.25	8.46		557.84	1543.54	553.55	1527.80	1481.33	1440.33	
3	60.99	61.69	57.07	3.92		698.94	1448.70	693.63	1442.70	1261.70	1261.70	
4	52.63	61.42	53.98	11.27		869.63	1430.38	867.09	1435.52	1135.52	1135.52	
5	49.66	58.11	50.88	11.14		866.60	1412.42	845.02	1415.92	999.73	999.73	
6	47.23	58.59	48.58	11.35		815.83	1175.98	783.48	1170.07	847.00	847.00	
7	47.74	51.00	48.02	10.28		767.71	1111.81	729.96	1110.76	803.87	803.87	
PARTIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	HN CHBR LN	REL DIV ANG	REL TURN ANGLE	EXIT ARS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS VELOCITY	EXIT REL YANG VEL	EXIT ABS YANG VEL
1	57.10	52.61	57.52	70.42		12.82	831.96	929.85	504.42	859.25	770.75	770.75
2	56.47	48.46	57.18	70.51		12.73	787.03	1037.05	370.33	940.52	867.39	867.39
3	49.35	33.58	52.85	11.64		11.64	883.38	985.88	842.28	530.90	747.94	747.94
4	44.87	38.99	46.18	7.72		9.72	829.20	958.33	828.78	478.43	678.43	678.43
5	39.04	39.92	34.70	5.24		9.72	798.73	798.91	805.68	510.22	518.51	518.51
6	24.50	48.73	16.84	7.66		25.74	902.42	747.71	864.69	592.89	302.89	302.89
7	9.95	45.75	10.70	10.75		37.73	804.20	748.25	733.38	733.44	625.17	625.17
PARTIAL POSITION	REL ROTOR AT INLET	REL ROTOR AT EXIT	INLET REL MACH NO	AXIAL VEL RATIO	INLET REL MACH NO	EXIT REL MACH NO	LOSS COEFFICIENT	LOSS PERCENT	POLY MACH EFFICIENCY	POLY MACH EFFICIENCY	POLY MACH EFFICIENCY	POLY MACH EFFICIENCY
1	1454.57	0.493	1.427	0.939	0.764	0.259	0.049	0.7319	0.7543	0.010	0.010	0.010
2	1425.72	0.509	1.418	0.918	0.849	0.210	0.039	0.7808	0.7996	0.031	0.031	0.031
3	1282.18	0.651	1.358	0.783	0.639	0.158	0.022	1.0134	1.0122	0.031	0.031	0.031
4	1141.90	0.826	1.250	0.718	0.696	0.133	0.030	0.7910	0.8032	0.030	0.030	0.030
5	998.14	0.815	1.250	0.718	1.968	0.114	0.026	0.8282	0.8384	0.026	0.026	0.026
6	838.03	0.768	1.107	0.848	2.248	0.114	0.023	0.8785	0.8863	0.023	0.023	0.023
7	790.71	0.719	1.041	0.977	2.548	0.123	0.026	0.8785	0.8859	0.026	0.026	0.026
PARTIAL POSITION	PERCENT IMPERSON	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT TEMP RATIO	LOSS PERCENT	LOSS PERCENT	EFFICIENCY	EFFICIENCY	EFFICIENCY	EFFICIENCY
1	5.0000	1.130	1.284	1.871	1.268	1.268	1.257	1.198	1.198	1.198	1.198	1.198
2	10.0000	1.924	1.226	1.896	1.189	1.189	1.158	1.158	1.158	1.158	1.158	1.158
3	30.0000	1.863	1.189	1.896	1.145	1.145	1.158	1.158	1.158	1.158	1.158	1.158
4	50.0000	1.879	1.145	1.896	1.145	1.145	1.158	1.158	1.158	1.158	1.158	1.158
5	70.0000	1.495	1.145	1.538	1.145	1.145	1.158	1.158	1.158	1.158	1.158	1.158
6	90.0000	1.580	1.144	1.594	1.163	1.163	1.163	1.163	1.163	1.163	1.163	1.163
7	95.0000	1.658	1.163	1.582	1.163	1.163	1.163	1.163	1.163	1.163	1.163	1.163

OVERALL PERFORMANCE SUMMARY

STAGE DATA ROTOR DATA ROTOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.6180 1.6694 1.6402
 Adiabatic Efficiency = 0.7631 0.8163 0.8022
 Polytropic Efficiency = 0.7786 0.8291 0.8714
 Percent. Design Speed = 99.9 Discharge Valve Setting= 10.0
 Cor. Nozzle Weight Flow= 212.3
 IF Check Flow/Noz.Flow = 0.9575 TE Check Flow/Noz.Flow = 0.9559
 Assumed LE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500

TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

RADIAL POSITION		REL FLOW ANG		ABS INLET FLOW ANG		CHBR LN LE ANGLE		INCID ANG		SUCT SURF		INLET REL VELOCITY		INLET AX VELOCITY		INLET ABS TANG VEL		EXIT REL VELOCITY		EXIT AX VELOCITY		EXIT ABS TANG VEL	
POINT NUMBER 24		BLADE ELEMENT PERFORMANCE RESULTS		BRADING NUMBER 441		DATE 9/29/970		STATOR BLADE BWH 5		NASA TASK IV0R													
1	2	54.12	39.47	44.44	39.11	5.33	14.65	18.03	774.82	818.03	479.46	553.18	542.51	526.44	460.51	498.18	572.11	787.11	1065.47	592.06	594.09	181.59	181.59
2	3	39.45	39.01	34.16	39.80	5.64	10.58	37.76	37.76	592.20	592.20	592.20	592.20	592.20	592.20	592.20	592.20	592.20	592.20	592.20	592.20	592.20	592.20
3	4	37.70	40.56	36.19	42.22	4.08	10.58	32.74	32.74	592.21	592.21	592.21	592.21	592.21	592.21	592.21	592.21	592.21	592.21	592.21	592.21	592.21	592.21
4	5	42.04	42.76			10.72		48.11	48.11	603.92	603.92	603.92	603.92	603.92	603.92	603.92	603.92	603.92	603.92	603.92	603.92	603.92	603.92
5	6																						
6	7																						
7																							
RADIAL POSITION		ROTOR SPD AT INLET		INLET REL MACH NO		AXIAL VFL RATIO		TURN ANGLE		LOSS COEFFICIENT		YBT PRESS LOSS		ABR EFFICIENCY		POLY MOMEN RISEZ		EFFICIENCY		MEAS Y RISE		STAT PRESS	
1		0.671		1.235		1.235		54.93		0.214		0.078		4.5859		3.6460		2.579		2.579		2.579	
2		0.649		1.075		1.075		42.65		0.086		0.1028		0.028		0.8449		0.324		0.324		0.324	
3		0.710		1.281		1.281		37.76		0.039		0.1012		0.0754		0.8449		0.350		0.350		0.350	
4		0.734		1.457		1.457		32.74		0.055		0.1015		0.0754		0.8449		0.404		0.404		0.404	
5		0.714		1.457		1.457		32.74		0.055		0.1015		0.0754		0.8449		0.404		0.404		0.404	
6		0.829		1.919		1.919		39.82		0.059		0.1014		0.0754		0.8449		0.452		0.452		0.452	
7		0.958		2.167		2.167		48.11		0.068		0.1016		0.0754		0.8449		0.482		0.482		0.482	
RADIAL POSITION		ROTOR SPD AT EXIT		EXIT REL MACH NO		FIXED TOT PRESS RATIO		TEMP RATIO		FIXED TOT LOSS		YBT PRESS LOSS		ABR EFFICIENCY		POLY MOMEN RISEZ		EFFICIENCY		MEAS Y RISE		STAT PRESS	
1		3.0000		0.968		0.968		1.080		0.214		0.078		4.5859		3.6460		2.579		2.579		2.579	
2		10.0000		1.002		1.002		1.080		0.086		0.1028		0.028		0.8449		0.324		0.324		0.324	
3		30.0000		0.975		0.975		1.080		0.039		0.1012		0.0754		0.8449		0.350		0.350		0.350	
4		50.0000		0.977		0.977		1.080		0.055		0.1015		0.0754		0.8449		0.404		0.404		0.404	
5		70.0000		1.027		1.027		1.080		0.059		0.1014		0.0754		0.8449		0.452		0.452		0.452	
6		90.0000		0.979		0.979		1.080		0.059		0.1014		0.0754		0.8449		0.452		0.452		0.452	
7		95.0000		0.896		0.896		1.880		0.068		0.1016		0.0754		0.8449		0.482		0.482		0.482	
PERCENT IMMERION		TRAV TOT PRESS RATIO		TEMP RATIO		FIXED TOT LOSS		YBT PRESS LOSS		ABR EFFICIENCY		POLY MOMEN RISEZ		EFFICIENCY		MEAS Y RISE		STAT PRESS		DIFFUSION FACTOR		CM3	
1		1.656		0.968		0.968		1.080		0.214		0.078		4.5859		3.6460		2.579		0.745		2.253	
2		1.000		1.002		1.002		1.080		0.086		0.1028		0.028		0.8449		0.324		0.450		0.347	
3		3.000		0.975		0.975		1.080		0.039		0.1012		0.0754		0.8449		0.350		0.445		0.378	
4		5.000		0.977		0.977		1.080		0.055		0.1015		0.0754		0.8449		0.404		0.463		0.435	
5		7.000		1.027		1.027		1.080		0.059		0.1014		0.0754		0.8449		0.452		0.503		0.482	
6		9.000		0.979		0.979		1.080		0.059		0.1014		0.0754		0.8449		0.452		0.428		0.441	
7		9.500		0.896		0.896		1.880		0.068		0.1016		0.0754		0.8449		0.482		0.593		0.486	
OVERALL PERFORMANCE SUMMARY		STATOR DATA		STATOR DATA		STATOR DATA		STATOR DATA		STATOR DATA		STATOR DATA		STATOR DATA		STATOR DATA		STATOR DATA		STATOR DATA		STATOR DATA	
PERFORMANCE PARAMETERS		Total Pressure Ratio =		Polytropic Efficiency =		Percent Design Speed =		Cor. Nozzle Weight Flow =		99.9		212.3		1.6180		0.9692		0.9348		1.0346		---	
TE Check Flow/Noz.Flow =		0.9559		Assumed LE Flow Coeff. =		0.9500		TE Check Flow/Noz.Flow =		0.9455		Assumed LE Flow Coeff. =		0.9350									

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TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV-B									
		BLADE ELEMENT PERFORMANCE RESULTS									
		POINT NUMBER	26	READING NUMBER	561	DATE	10/ 6/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	MN CHBR LN ANCH	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL
1	68.47	0.74	61.28	7.19	574.77	1557.18	570.94	7.41	1447.24	7.41	1447.24
2	67.71	0.38	60.25	7.46	585.00	1537.20	582.84	3.87	1421.54	3.87	1421.54
3	61.05	-0.13	57.07	3.98	710.39	1467.48	710.38	-1.63	1284.08	-1.63	1284.08
4	52.83	-0.36	53.90	-1.07	872.71	1441.55	869.97	-5.41	1147.37	-5.41	1147.37
5	50.26	-1.15	50.80	-0.54	855.85	1327.71	844.47	-17.00	1015.20	-17.00	1015.20
6	47.69	-1.99	48.58	-0.89	821.60	1171.71	788.54	-27.44	866.42	-27.44	866.42
7	48.68	-3.20	48.02	0.66	769.97	1132.60	731.17	-40.87	831.62	-40.87	831.62
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANGLE TE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	60.42	34.56	57.52	2.90	715.59	1191.45	587.61	404.74	1035.04	404.74	1035.04
2	57.13	33.46	57.18	-0.05	766.07	1202.42	651.99	398.96	1009.02	398.96	1009.02
3	50.74	29.05	52.85	10.58	822.38	1136.07	718.84	329.28	879.64	329.28	879.64
4	48.19	24.44	46.10	6.64	845.30	1111.19	768.78	349.41	801.43	349.41	801.43
5	41.87	32.49	34.70	0.09	793.77	898.10	665.79	423.93	596.85	423.93	596.85
6	22.22	35.18	16.84	7.57	999.84	886.65	804.53	567.12	328.71	567.12	328.71
7	14.05	39.65	10.70	3.35	1055.99	846.24	799.53	662.58	200.05	662.58	200.05
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS TOY PRESS LOSS PARAM	AD8 EFFICIENCY	POLY MOMEN RISEZ POLY EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF	DIFFUSION FACTOR	CHI
1	1435.78	0.526	1.425	1.029	0.035	0.7322	0.7492	0.204	0.201	0.300	0.300
2	1425.40	0.536	1.409	1.119	0.027	0.8021	0.8150	0.204	0.204	0.305	0.305
3	1282.45	0.662	1.368	1.012	-0.002	1.0174	1.0162	0.245	0.245	0.310	0.310
4	1141.96	0.829	1.369	0.884	0.029	0.7267	0.7378	0.299	0.299	0.299	0.299
5	993.19	0.811	1.258	0.789	0.044	0.6141	0.6276	0.338	0.338	0.502	0.502
6	838.97	0.776	1.127	1.020	0.038	0.7785	0.7900	0.264	0.264	0.371	0.371
7	790.75	0.723	1.063	1.093	0.041	0.7815	0.7931	0.162	0.162	0.390	0.390
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	LOSS PARAM	AD8 EFFICIENCY	POLY MOMEN RISEZ POLY EFFICIENCY	MEAS T RISE	STAT PRESS RISE COEFF	CHI
1	1435.78	0.606	1.009	1.4310	0.204	0.035	0.7322	0.7492	0.204	0.201	0.300
2	1425.40	0.664	1.083	1.4610	0.146	0.027	0.8021	0.8150	0.204	0.204	0.305
3	1278.92	0.726	1.002	1.6120	-0.012	-0.002	1.0174	1.0162	0.245	0.245	0.310
4	1150.84	0.758	0.997	1.7730	0.149	0.029	0.7267	0.7378	0.299	0.299	0.299
5	1020.79	0.793	0.796	1.9680	0.230	0.044	0.6141	0.6276	0.338	0.338	0.502
6	895.83	0.907	0.805	2.2480	0.184	0.038	0.7785	0.7900	0.272	0.272	0.371
7	862.64	0.961	0.770	2.3470	0.199	0.041	0.7815	0.7931	0.208	0.208	0.390
RADIAL POSITION	PERCENT EXCURSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	FIXED INST. FIXED INST. TRAV. INST.	PERFORMANCE PARAMETERS	STAGE DATA ROTOR DATA	FIXED INST. FIXED INST. TRAV. INST.
1	5.0000	1.552	1.189	1.595	1.195	Total Pressure Ratio =	1.3842	1.4303	1.4826	1.4826	
2	10.0000	1.608	1.151	1.613	1.183	Adiabatic Efficiency =	0.6582	0.7280	0.9300	0.9300	
3	30.0000	1.586	1.134	1.653	1.152	Polytropic Efficiency =	0.6735	0.7414	0.9338	0.9338	
4	50.0000	1.369	1.099	1.342	1.121	Percent Design Speed =	100.0	Discharge Valve Setting =	30.0	30.0	
5	70.0000	1.322	1.112	1.286	1.147	Cor. Nozzle Weight Flow =	216.4				
6	90.0000	1.522	1.127	1.460	1.149	LE Check Flow/Noz.Flow =	0.9422	TE Check Flow/Noz.Flow =	0.9481	0.9481	
7	95.0000	1.555	1.143	1.471	1.149	Assumed LE Flow Coeff. =	0.9850	Assumed TE Flow Coeff. =	0.9500	0.9500	

TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

POINT NUMBER 26		STATOR BLADE ROW - NASA TASK IV-8		BLADE ELEMENT PERFORMANCE RESULTS		DATE 10/ 6/1970									
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCLD ANG MN CHBR LN	INCLD ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	36.18	32.45	39.47	-3.29	688.60	555.02	555.02	671.02	406.48	406.48	670.80	670.80	43.37	38.48	38.48
2	28.93	23.58	39.01	-6.66	823.44	720.45	720.45	720.45	398.18	398.18	720.45	720.45	17.67	17.67	17.67
3	30.31	30.37	40.86	-10.08	823.56	787.22	787.22	787.22	343.22	343.22	737.69	737.69	4.83	4.83	4.83
4	34.87	34.87	42.22	-16.12	1093.32	933.80	933.80	933.80	547.24	547.24	849.52	849.52	-11.02	-11.02	-11.02
5				-11.85	1123.61	911.76	911.76	911.76	635.35	635.35	741.07	741.07	-35.03	-35.03	-35.03
6				-7.89											
7															
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANGLE	TURN ANGLE	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	3.70	3.28	-11.13	14.83	32.48	671.02	671.02	671.02	43.37	43.37	670.80	670.80	43.37	38.48	38.48
2	1.40	0.37	-8.97	13.38	29.17	671.02	671.02	671.02	38.48	38.48	670.80	670.80	43.37	38.48	38.48
3	0.85	0.37	-8.97	10.27	27.52	741.10	741.10	741.10	17.67	17.67	737.69	737.69	4.83	4.83	4.83
4	-0.85	-0.17	-9.10	9.12	23.31	740.72	740.72	740.72	4.83	4.83	739.44	739.44	-11.02	-11.02	-11.02
5	-0.17	-0.17	-10.58	10.41	30.54	852.02	852.02	852.02	-2.49	-2.49	849.52	849.52	-2.49	-2.49	-2.49
6	-2.71		-12.36	9.65	37.98	744.50	744.50	744.50			741.07	741.07			
7															
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY COEFFICIENT	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS EFFICIENCY	AD5 EFFICIENCY	POLY MOHEN RISE/ RISE COEFF	DIFFUSION FACTOR	CH1			
1	0.582	0.582	0.582	1.207	1.5230	0.240	0.079	3.0078	0.8700	0.132	0.197	0.142			
2	0.646	0.646	0.646	1.069	1.5440	0.060	0.019	0.8700	0.211	0.158	0.236	0.172			
3	0.727	0.727	0.727	1.000	1.6310	0.069	0.021	0.9803	0.211	0.233	0.266	0.233			
4	0.774	0.774	0.774	0.937	1.7420	0.135	0.039	0.8312	0.225	0.225	0.255	0.225			
5	1.044	1.044	1.044	1.044	1.8600	0.073	0.019	0.8333	0.160	0.160	0.337	0.160			
6	1.009	1.009	1.009	0.910	2.0510	0.092	0.022	0.7476	0.296	0.296	0.341	0.296			
7	1.035	1.035	1.035	0.813	2.0980	0.120	0.028	0.5179	0.281	0.281	0.477	0.281			
RADIAL POSITION	PERCENT THROU SECTION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS EFFICIENCY	AD5 EFFICIENCY	POLY MOHEN RISE/ RISE COEFF	DIFFUSION FACTOR	CH1			
1	95.0000	1.023	1.001	0.953	1.000	0.240	0.079	3.0078	0.8700	0.132	0.197	0.142			
2	30.0000	0.993	1.011	0.986	1.000	0.060	0.019	0.8700	0.211	0.158	0.236	0.172			
3	30.0000	0.998	1.007	0.980	1.000	0.069	0.021	0.9803	0.211	0.233	0.266	0.233			
4	50.0000	0.981	1.010	0.955	1.000	0.135	0.039	0.8312	0.225	0.225	0.255	0.225			
5	70.0000	0.968	1.002	0.978	1.000	0.073	0.019	0.8333	0.160	0.160	0.337	0.160			
6	90.0000	0.933	1.013	0.954	1.000	0.092	0.022	0.7476	0.296	0.296	0.341	0.296			
7	95.0000	0.826	0.997	0.738	1.000	0.120	0.028	0.5179	0.281	0.281	0.477	0.281			

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA
 FIXED INST. FIXED INST. TRAV. INST.
 Total Pressure Ratio = 1.3842 0.9678 0.9778
 Polytropic Efficiency = 0.6735 0.9084 0.6441
 Percent Design Speed = 100.0 Discharge Valve Settings= 30.0
 Cor. Nozzle Weight Flow= 216.4
 LE Check Flow/Noz.Flow = 0.9481 TE Check Flow/Noz.Flow = 0.9214
 Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		ROTOR BLADE ROW - NASA TASK IV-B									
		BLADE ELEMENT PERFORMANCE RESULTS					POINT NUMBER 27				
		READING NUMBER 362					DATE 10/ 6/1970				
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	MN CHBR LN INCID ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS YANG VEL	INLET REL YANG VEL	INLET ABS YANG VEL	INLET REL YANG VEL
1	70.11	-1.99	61.28	8.83	537.19	1568.85	533.33	-18.49	1474.13		
2	68.57	-0.19	60.25	8.32	562.54	1535.02	560.44	-1.85	1428.22		
3	62.97	-0.28	57.07	5.90	656.37	1444.25	656.35	-3.17	1286.49		
4	54.36	-0.64	53.90	0.46	828.68	1418.99	824.05	-9.17	1151.91		
5	50.86	-1.43	50.80	0.06	841.22	1311.62	829.85	-20.68	1019.54		
6	47.88	-2.13	48.58	-0.70	818.52	1193.22	785.52	-29.16	868.71		
7	47.93	-1.78	48.02	-0.09	772.94	1122.34	734.70	-22.80	814.08		
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANGLE TE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS YANG VEL	EXIT REL YANG VEL	EXIT ABS YANG VEL	EXIT REL YANG VEL
1	60.00	49.79	57.52	2.48	766.87	989.64	494.22	584.58	856.17		
2	56.03	43.21	57.18	-1.15	799.00	1043.33	581.37	546.21	862.73		
3	48.47	34.98	52.85	-4.38	850.21	1009.33	669.21	524.20	755.50		
4	45.48	34.13	46.10	-0.22	814.67	988.56	673.84	456.66	694.96		
5	40.47	39.74	34.70	5.77	792.31	800.74	606.39	504.16	517.32		
6	24.29	41.31	16.84	7.36	910.44	754.40	674.85	593.12	303.32		
7	15.99	44.72	10.70	5.29	965.17	724.72	676.02	669.49	193.73		
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	REL TURN ANGLE	LOSS COEFFICIENT	LOSS PARAM	ABD EFFICIENCY	EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF
1	1455.64	0.489	1.429	0.927	10.11	0.239	0.042	0.7543	0.7754	0.7754	0.310
2	1426.37	0.514	1.402	1.037	12.55	0.211	0.040	0.7828	0.8016	0.7828	0.325
3	1283.32	0.688	1.339	1.020	14.50	-0.015	-0.003	1.0170	1.0156	1.0156	0.355
4	1142.74	0.781	1.338	0.816	8.47	0.155	0.031	0.7808	0.7931	0.7808	0.340
5	998.87	0.795	1.250	0.731	6.47	0.164	0.032	0.7827	0.7947	0.7827	0.304
6	839.54	0.773	1.126	0.859	10.40	0.139	0.028	0.8489	0.8582	0.8489	0.456
7	791.29	0.726	1.054	0.920	23.68	0.136	0.028	0.8630	0.8715	0.8630	0.451
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT PRESS. RATIO	FIXED TOT TEMP. RATIO	LOSS COEFFICIENT	LOSS PARAM	ABD EFFICIENCY	EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF
1	1440.76	0.626	0.868	1.4310	1.906	0.239	0.042	0.7543	0.7754	0.7754	0.310
2	1408.94	0.673	0.877	1.4610	1.861	0.211	0.040	0.7828	0.8016	0.7828	0.325
3	1279.79	0.733	0.871	1.6120	1.899	-0.015	-0.003	1.0170	1.0156	1.0156	0.355
4	1151.62	0.714	0.849	1.7730	1.904	0.155	0.031	0.7808	0.7931	0.7808	0.340
5	1021.48	0.692	0.699	1.9640	1.935	0.164	0.032	0.7827	0.7947	0.7827	0.304
6	894.43	0.807	0.669	2.2480	1.941	0.139	0.028	0.8489	0.8582	0.8489	0.456
7	863.22	0.856	0.640	2.3470	1.943	0.136	0.028	0.8630	0.8715	0.8630	0.451
RADIAL POSITION	PERCENT DEPRESSION	TRAV TOT PRESS. RATIO	TRAV TOT TEMP. RATIO	FIXED TOT PRESS. RATIO	FIXED TOT TEMP. RATIO	LOSS COEFFICIENT	LOSS PARAM	ABD EFFICIENCY	EFFICIENCY	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF
1	9.0000	1.900	1.283	1.906	1.261	0.239	0.042	0.7543	0.7754	0.7754	0.310
2	10.0000	1.937	1.221	1.916	1.261	0.211	0.040	0.7828	0.8016	0.7828	0.325
3	30.0000	1.873	1.192	1.899	1.198	-0.015	-0.003	1.0170	1.0156	1.0156	0.355
4	50.0000	1.550	1.136	1.504	1.198	0.155	0.031	0.7808	0.7931	0.7808	0.340
5	70.0000	1.491	1.141	1.491	1.143	0.164	0.032	0.7827	0.7947	0.7827	0.304
6	90.0000	1.604	1.146	1.573	1.143	0.139	0.028	0.8489	0.8582	0.8489	0.456
7	95.0000	1.659	1.163	1.574	1.161	0.136	0.028	0.8630	0.8715	0.8630	0.451

OVERALL PERFORMANCE SUMMARY

STAGE DATA		ROTOR DATA		ROTOR DATA	
FIXED INST.		FIXED INST.		TRAV. INST.	
Total Pressure Ratio	=	1.6119	1.6376	1.6989	
Adiabatic Efficiency	=	0.7580	0.7849	0.9387	
Polytropic Efficiency	=	0.7737	0.7993	0.9431	
Percent Design Speed	=	100.0			
Cor. Nozzle Weight Flow	=	213.7			

Discharge Valve Settings= 10.5
 LE Check Flow/Hoz.Flow = 0.9373
 Assumed LE Flow Coeff. = 0.9850
 TE Check Flow/Hoz.Flow = 0.9598
 Assumed TE Flow Coeff. = 0.9500

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POINT NUMBER		STATOR BLADE ROW - NASA TASK IV-B									
27		BLADE ELEMENT PERFORMANCE RESULTS DATE 10/ 6/1970									
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	
1	51.32	44.20	39.47	11.85		752.09	470.06	587.10	587.10	587.10	
2	37.94	33.31	39.01	-1.07		786.31	563.87	548.22	548.22	548.22	
3	33.31	37.94	39.60	-6.49		850.54	670.56	522.84	522.84	522.84	
4	37.93	37.93	40.86	-3.33		822.81	686.74	451.28	451.28	451.28	
5	37.73	42.22	42.22	-4.49		811.00	640.92	492.28	492.28	492.28	
6	41.07	42.76	42.76	-1.69		943.34	739.78	572.33	572.33	572.33	
7						980.27	736.84	641.97	641.97	641.97	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	3.20	4.91	-11.13	14.41	48.04	595.24	504.37	504.37	34.04	34.04	
2	4.91	2.98	-10.10	15.01	39.29	586.29	584.12	584.12	50.21	50.21	
3	-1.17	0.30	-8.87	11.45	35.37	613.63	612.82	612.82	27.36	27.36	
4	0.30	0.72	-8.75	9.58	34.48	586.31	585.76	585.76	-11.97	-11.97	
5	0.72	0.710	-9.10	9.40	37.23	613.83	612.83	612.83	3.18	3.18	
6	2.16	0.840	-10.38	12.74	35.57	668.52	668.09	668.09	25.12	25.12	
7	-1.32	0.878	-12.36	11.04	42.39	599.71	597.45	597.45	-13.73	-13.73	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CH1					
1	0.613	0.613	0.613	1.264	0.450	0.354					
2	0.661	0.661	0.661	1.036	0.459	0.372					
3	0.734	0.734	0.734	0.914	0.456	0.385					
4	0.722	0.722	0.722	0.853	0.448	0.471					
5	0.710	0.710	0.710	0.756	0.402	0.488					
6	0.840	0.840	0.840	0.900	0.430	0.412					
7	0.878	0.878	0.878	0.811	0.547	0.390					
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	LOSS COEFFICIENT	LOSS PARAM	TOY PRESS EFFICIENCY	ADD PRESS EFFICIENCY	POLY MOMEN RISE/ RISE	STAT PRESS RISE COEFF	
1	0.486	0.486	0.486	1.5230	0.154	0.050	1.0044	1.0044	0.334	0.334	
2	0.483	0.483	0.483	1.5440	0.065	0.021	0.8411	0.8411	0.355	0.355	
3	0.517	0.517	0.517	1.6310	0.045	0.014	0.8094	0.8094	0.440	0.440	
4	0.501	0.501	0.501	1.7420	0.018	0.005	0.9564	0.9564	0.457	0.457	
5	0.525	0.525	0.525	1.8800	0.043	0.012	1.1307	1.1307	0.372	0.372	
6	0.573	0.573	0.573	2.0510	0.052	0.013	0.8279	0.8279	0.348	0.348	
7	0.512	0.512	0.512	2.0980	0.072	0.017	0.6339	0.6339	0.348	0.348	
RADIAL POSITION	PERCENT IMMERGION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO						
1	5.0000	1.000	0.971	0.966	1.000						
2	10.0000	0.979	1.001	0.984	1.000						
3	30.0000	0.997	0.998	0.986	1.000						
4	50.0000	0.992	1.003	0.994	1.000						
5	70.0000	1.019	1.004	0.988	1.000						
6	90.0000	0.959	1.007	0.980	1.000						
7	95.0000	0.888	0.992	0.970	1.000						

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA -
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS =
 Total Pressure Ratio = 1.6119 0.9843 0.9816
 Polytropic Efficiency = 0.7737 0.9680 0.8623
 Percent Design Speed = 100.0 Discharge Valve Settings= 10.5
 Cor. Nozzle Weight Flow= 213.7
 IE Check Flow/Noz.Flow = 0.9598 TE Check Flow/Noz.Flow = 0.9280
 Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

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TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV-B		POINT NUMBER 26		BLADE ELEMENT PERFORMANCE RESULTS		READING NUMBER 563		DATE 10/ 6/1970	
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	HN INCLD ANG	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	71.85	-4.10	61.28	10.37	492.76	1568.53	488.28	-35.03	1489.53
2	70.48	-2.76	60.25	10.23	516.56	1539.10	514.04	-24.78	1450.04
3	63.27	-1.37	57.07	6.20	653.89	1453.30	653.69	-15.67	1297.98
4	54.60	1.29	53.90	0.50	795.59	1377.00	792.91	1124.05	1124.05
5	51.32	-1.49	50.80	0.52	827.43	1317.73	816.02	-21.26	1019.35
6	48.27	-2.27	48.58	-0.31	808.32	1186.88	775.66	-30.74	869.63
7	48.02	-1.59	48.02	0.00	767.38	1116.24	749.49	-20.11	810.88
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CMBR LN TE ANGLE	REL DEV ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	60.23	63.99	57.52	2.71	865.25	764.22	370.09	776.99	662.64
2	56.16	57.13	57.18	-1.02	854.27	832.70	403.25	716.85	690.99
3	48.58	43.50	52.85	-4.62	846.65	928.32	614.12	882.71	696.07
4	43.65	38.52	46.10	-2.45	841.06	909.42	657.59	523.36	627.36
5	36.95	41.61	34.70	2.25	835.91	782.54	622.20	552.65	468.03
6	25.76	45.90	16.84	8.92	859.63	669.26	581.44	610.33	285.40
7	16.04	48.65	10.70	5.34	928.44	646.98	605.86	688.31	174.124
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS HACH NO	INLET REL HACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR	CHI			
1	1454.50	0.446	1.419	0.776	0.693	0.476			
2	1425.25	0.469	1.396	0.901	0.623	0.486			
3	1282.32	0.606	1.348	0.959	0.489	0.504			
4	1141.84	0.747	1.293	0.829	0.444	0.506			
5	998.09	0.782	1.241	0.782	0.516	0.523			
6	838.89	0.763	1.121	0.762	0.560	0.550			
7	790.67	0.722	1.050	0.831	0.561	0.525			
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS HACH NO	EXIT REL HACH NO	SOLIDITY RATIO	LOSS TOT PRESS	LOSS PARAM EFFICIENCY	AD9 EFFICIENCY	POLY MOMEN RISE/ MEAS Y RISE	STAY PRESS RISE COEFF
1	1439.63	0.685	0.605	1.4310	0.059	0.6972	0.7261	0.7661	0.357
2	1407.84	0.697	0.680	1.4610	0.055	0.7389	0.7641	0.7641	0.366
3	1278.78	0.720	0.789	1.6130	0.010	0.9527	0.9572	0.9572	0.405
4	1150.72	0.731	0.791	1.7750	0.031	0.6237	0.8359	0.8359	0.529
5	1020.68	0.729	0.683	1.9640	0.025	0.8594	0.8689	0.8689	0.467
6	895.73	0.754	0.587	2.2480	0.024	0.8747	0.8829	0.8829	0.554
7	862.54	0.816	0.569	2.3470	0.027	0.8758	0.8840	0.8840	0.561
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	PERFORMANCE PARAMETERS			
1	5.0000	2.161	1.377	1.530	1.310	STAGE DATA ROTOR DATA ROTOR DATA			
2	10.0000	2.134	1.302	2.074	1.314	FIXED INST. FIXED INST. TRAV. INST.			
3	30.0000	1.977	1.225	2.024	1.214	Total Pressure Ratio = 1.7284 1.7727 1.8227			
4	50.0000	1.722	1.162	1.632	1.190	Adiabatic Efficiency = 0.7569 0.7949 0.9163			
5	70.0000	1.644	1.139	1.639	1.177	Polytropic Efficiency = 0.7748 0.8107 0.9230			
6	98.0000	1.448	1.137	1.618	1.169	Percent Design Speed = 100.0 Discharge Valve Setting= 6.5			
7	99.0000	1.715	1.176	1.624	1.170	Cor. Nozzle Weight Flow= 206.9			
OVERALL PERFORMANCE SUMMARY									
LE Check Flow/Noz.Flow = 0.9580 TE Check Flow/Noz.Flow = 0.9608									
Assumed LE Flow Coeff. = 0.9850 Assumed TE Flow Coeff. = 0.9500									

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		STATOR BLADE ROW - NASA TASK IV-B											
		BLADE ELEMENT PERFORMANCE RESULTS						POINT NUMBER 28					
		READING NUMBER 563						DATE 10/ 6/1970					
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET ABS TANG VEL	INLET REL TANG VEL	
1	65.11	57.53	39.47	25.44	860.31	361.99	450.74	780.33	719.49				
2	43.36	39.01	4.35	846.50	847.20	619.26	581.11	517.19					
3	37.68	39.60	-2.12	854.27	876.56	658.58	539.62	640.52	588.94				
4	39.33	40.86	-1.53	936.76	654.02								
5	42.60	42.22	0.38										
6	45.26	42.76	2.50										
7													
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TB	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT ABS TANG VEL	EXIT REL TANG VEL	
1	-7.24	-8.19	-11.13	3.89	22.35	530.18	531.90	518.34	-67.55				
2	2.05	0.53	-8.67	10.92	41.31	526.15	525.68	585.33	18.62				
3	-0.23	-0.02	-8.75	6.28	37.15	616.39	615.39	582.76	-2.49				
4	-0.02	-3.67	-10.58	10.49	42.69	490.77	488.05						
5			-12.36	8.69	48.93								
6													
7													
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	LOSS COEFFICIENT	LOSS TOT LOSS	PRESS PARAM EFFICIENCY	ABR EFFICIENCY	POLY HOMOEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	CH1		
1	0.681	0.681	1.469	1.5230	0.166	0.054	0.5003	0.5003	0.263	0.285			
2	0.692	0.720	0.854	1.5440	0.163	0.052	0.5231	0.5231	0.286	0.311			
3	0.737	0.747	0.874	1.5310	0.110	0.034	0.7344	0.7344	0.414	0.445			
4	0.771	0.771	0.934	1.7420	0.035	0.010	0.9412	0.9412	0.461	0.493			
5	0.825	0.825	0.910	1.6800	0.033	0.009	1.0357	1.0357	0.457	0.490			
6			0.910	2.0510	0.056	0.014	0.8275	0.8275	0.424	0.459			
7			0.746	2.0980	0.081	0.019	0.6502	0.6502	0.429	0.469			
RADIAL POSITION	PERCENT ILLUMINATION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS TOT LOSS	PRESS PARAM EFFICIENCY	ABR EFFICIENCY	POLY HOMOEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF		
1	5.0000	0.912	0.931	0.955	1.000	0.166	0.054	0.5003	0.5003	0.263	0.285		
2	10.0000	0.910	0.961	0.955	1.000	0.163	0.052	0.5231	0.5231	0.286	0.311		
3	30.0000	0.944	0.995	0.968	1.000	0.110	0.034	0.7344	0.7344	0.414	0.445		
4	50.0000	0.988	1.008	0.989	1.000	0.035	0.010	0.9412	0.9412	0.461	0.493		
5	70.0000	1.003	1.006	0.990	1.000	0.033	0.009	1.0357	1.0357	0.457	0.490		
6	90.0000	0.962	1.007	0.981	1.000	0.056	0.014	0.8275	0.8275	0.424	0.459		
7	95.0000	0.894	0.993	0.970	1.000	0.081	0.019	0.6502	0.6502	0.429	0.469		

OVERALL PERFORMANCE SUMMARY

STAGE DATA STATOR DATA STATOR DATA -
 FIXED INST. FIXED INST. TRAV. INST.
 PERFORMANCE PARAMETERS
 Total Pressure Ratio = 1.7284 0.9750 0.8469
 Polytropic Efficiency = 0.7748 0.9557
 Percent Design Speed = 100.0 Discharge Valve Setting= 6.5
 Cor. Nozzle Weight Flow= 206.9
 LE Check Flow/Noz.Flow = 0.9608 TE Check Flow/Noz.Flow = 0.9406
 Assumed LE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350

1.00778 TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV-B											
BLADE ELEMENT PERFORMANCE RESULTS											
POINT NUMBER 7 READING NUMBER 576 DATE 10/7/1970											
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCD ANG MN CHBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL		
1	67.99	0.02	61.28	6.71	592.42	1572.02	588.51	0.16	1456.12		
2	66.90	0.57	60.25	6.65	608.44	1545.74	606.15	6.03	1420.97		
3	61.21	-0.65	57.07	4.14	710.05	1474.18	709.99	-8.05	1291.94		
4	52.47	-0.84	53.90	-1.43	891.07	1459.70	888.18	-12.89	1158.24		
5	50.02	-1.30	50.80	-0.78	866.14	1374.95	854.27	-19.32	1018.63		
6	48.07	-2.55	48.58	-0.51	819.01	1197.94	785.77	-35.02	874.94		
7	48.19	-2.27	48.02	0.17	772.45	1126.66	734.04	-29.05	820.69		
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN LE ANGLE	REL DEV ANG-TE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL		
1	58.59	34.37	57.52	1.07	754.79	1186.14	617.49	430.27	1011.12		
2	57.03	30.82	57.18	-0.15	769.28	1212.52	659.19	393.20	1016.37		
3	48.03	28.50	52.85	-4.82	880.65	1137.18	773.88	420.11	869.24		
4	46.31	23.90	46.10	0.21	846.64	1120.07	773.26	342.69	809.44		
5	41.59	32.43	34.70	6.89	799.55	901.29	671.09	426.31	595.62		
6	12.13	35.17	16.84	2.29	1059.88	921.78	852.94	601.00	395.81		
7	11.10	39.23	10.70	2.40	1080.87	867.90	823.12	672.09	191.51		
RADIAL POSITION	REL ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	REL TURN ANGLE	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/MEAS T RISE	STAT PRESS RISE COEFF
1	1456.28	0.544	1.443	1.049	9.41	0.175	0.032	0.7585	0.7755	0.8497	0.202
2	1427.00	0.560	1.422	1.088	9.86	-0.003	-0.001	1.0048	1.0045	0.8497	0.231
3	1287.89	0.662	1.375	1.090	13.18	0.145	0.028	0.7298	0.7409	0.8497	0.230
4	1143.24	0.849	1.390	0.871	6.16	0.216	0.041	0.6238	0.6368	0.8497	0.288
5	292.31	0.823	1.271	0.786	8.42	0.168	0.035	0.7930	0.8038	0.8497	0.195
6	839.91	0.774	1.132	1.085	38.95	0.184	0.038	0.7976	0.8084	0.8497	0.182
7	791.64	0.726	1.059	1.121	35.09	0.184	0.038	0.7976	0.8084	0.8497	0.182
RADIAL POSITION	REL ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY RATIO	REL TURN ANGLE	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS EFFICIENCY	ADB EFFICIENCY	POLY MOMEN RISE/MEAS T RISE	STAT PRESS RISE COEFF
1	1441.39	0.647	1.018	1.4310	9.41	0.175	0.032	0.7585	0.7755	0.8497	0.202
2	1407.56	0.658	1.053	1.4610	9.86	-0.003	-0.001	1.0048	1.0045	0.8497	0.231
3	1287.35	0.740	1.024	1.6120	13.18	0.145	0.028	0.7298	0.7409	0.8497	0.230
4	1152.13	0.760	1.005	1.7730	6.16	0.216	0.041	0.6238	0.6368	0.8497	0.288
5	121.93	0.710	0.800	1.9640	8.42	0.168	0.035	0.7930	0.8038	0.8497	0.195
6	896.53	0.971	0.834	2.2480	38.95	0.184	0.038	0.7976	0.8084	0.8497	0.182
7	863.50	0.987	0.793	2.3470	35.09	0.184	0.038	0.7976	0.8084	0.8497	0.182
RADIAL POSITION	WEIGHT INCREMENT	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	OVERALL PERFORMANCE SUMMARY					
1	5.0000	1.577	1.175	1.591	1.185	STAGE DATA ROTOR DATA ROTOR DATA					
2	10.0000	1.593	1.151	1.612	1.174	FIXED INST. FIXED INST. TRAV. INST.					
3	30.0000	1.645	1.146	1.654	1.154	Total Pressure Ratio = 1.3075 1.4292 1.4975					
4	50.0000	1.366	1.098	1.543	1.121	Adiabatic Efficiency = 0.6761 0.7404 0.9350					
5	70.0000	1.326	1.112	1.292	1.118	Polytropic Efficiency = 0.6907 0.7531 0.9414					
6	90.0000	1.525	1.140	1.460	1.144	Percent Design Speed = 100.1 Discharge Valve Setting = 30.0					
7	90.0000	1.559	1.145	1.476	1.148	Cor. Nozzle Weight Flow = 218.8					

TE Check Flow/Noz.Flow = 0.9383
 Assumed IE Flow Coeff. = 0.9870
 Assumed TE Flow Coeff. = 0.9500

TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

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		STATOR BLADE ROW * NASA TASK IV-B												
		BLADE ELEMENT PERFORMANCE RESULTS					POINT NUMBER 7							
		READING NUMBER 576					DATE 10/ 7/1970							
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	EXIT ABS VELOCITY	EXIT REL VELOCITY	TURN ANGLE	DEV ANG TE	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL. RATIO
1	36.56	39.47	-2.91	725.39	582.62	725.39	582.62	725.39	582.62	33.26	14.43	0.620	0.620	1.125
2	31.80	39.11	-7.31	748.90	636.46	748.90	636.46	748.90	636.46	33.26	14.43	0.649	0.649	1.052
3	29.37	39.01	-10.64	862.04	775.85	862.04	775.85	862.04	775.85	29.44	12.46	0.781	0.781	0.943
4	23.15	39.80	-16.65	862.83	792.10	862.83	792.10	862.83	792.10	26.81	10.42	0.776	0.776	1.036
5	30.24	40.86	-10.62	830.09	714.19	830.09	714.19	830.09	714.19	23.03	8.87	1.140	1.140	0.815
6	29.00	42.22	-13.22	1208.62	1046.38	1208.62	1046.38	1208.62	1046.38	29.13	10.44	1.092	1.092	0.778
7	33.71	42.76	-9.05	1174.33	965.83	1174.33	965.83	1174.33	965.83	35.53	10.55			
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMBR LN LE ANGLE	INCID ANG MN CMBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	EXIT ABS VELOCITY	EXIT REL VELOCITY	TURN ANGLE	DEV ANG TE	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL. RATIO
1	3.30	-11.13	14.43	656.78	656.78	656.78	656.78	656.78	656.78	33.26	14.43	0.273	0.273	0.165
2	2.36	-10.10	12.46	673.24	673.24	673.24	673.24	673.24	673.24	29.44	12.46	0.259	0.259	0.213
3	1.55	-8.87	10.42	731.79	731.79	731.79	731.79	731.79	731.79	26.81	10.42	0.309	0.309	0.240
4	0.12	-8.75	8.87	731.27	731.27	731.27	731.27	731.27	731.27	23.03	8.87	0.264	0.264	0.225
5	-1.06	-9.10	8.04	741.19	741.19	741.19	741.19	741.19	741.19	31.29	8.04	0.244	0.244	0.159
6	-0.14	-10.58	10.44	854.90	854.90	854.90	854.90	854.90	854.90	29.13	10.44	0.408	0.408	0.419
7	-1.81	-12.36	10.55	754.51	754.51	754.51	754.51	754.51	754.51	35.53	10.55	0.491	0.491	0.369
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL. RATIO										
1	5.0000	0.995	1.005	0.956	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.5230	1.5230	0.195
2	10.0000	1.003	1.012	0.987	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.5440	1.5440	0.056
3	30.0000	0.972	0.997	0.988	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.6310	1.6310	0.037
4	50.0000	0.974	1.010	0.953	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.7420	1.7420	0.142
5	70.0000	0.982	1.004	0.981	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.8800	1.8800	0.060
6	90.0000	0.932	1.011	0.959	1.000	1.000	1.000	1.000	1.000	1.000	1.000	2.0510	2.0510	0.071
7	95.0000	0.849	1.000	0.943	1.000	1.000	1.000	1.000	1.000	1.000	1.000	2.0980	2.0980	0.103
RADIAL POSITION	PERCENT IMMERSION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	LOSS PARAM	TOT PRESS	ADB EFFICIENCY	POLY MOMEN MEAS T RISE	STAT PRESS RISE COEFF			
1	5.0000	0.995	1.005	0.956	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.064	0.064	0.8951
2	10.0000	1.003	1.012	0.987	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.018	0.018	1.0570
3	30.0000	0.972	0.997	0.988	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.011	0.011	0.7811
4	50.0000	0.974	1.010	0.953	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.041	0.041	0.7822
5	70.0000	0.982	1.004	0.981	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.016	0.016	0.7746
6	90.0000	0.932	1.011	0.959	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.017	0.017	0.8394
7	95.0000	0.849	1.000	0.943	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.025	0.025	0.8446
OVERALL PERFORMANCE SUMMARY														
STAGE DATA STATOR DATA STATOR DATA														
FIXED INST. FIXED INST. TRAV. INST.														
PERFORMANCE PARAMETERS														
Total Pressure Ratio = 1.3875 0.9708 0.9695														
Polytropic Efficiency = 0.6907 0.9171 0.6834														
Percent Design Speed = 100.1 Discharge Valve Setting= 30.0														
Cor. Nozzle Weight Flow= 218.8														
IE Check Flow/Noz.Flow = 0.9566 IE Check Flow/Noz.Flow = 0.9121														
Assumed IE Flow Coeff. = 0.9500 Assumed IE Flow Coeff. = 0.9350														

DIFFUSION FACTOR

0.273 0.259 0.309 0.264 0.244 0.408 0.491

0.165 0.213 0.240 0.225 0.159 0.419 0.369

0.273 0.259 0.309 0.264 0.244 0.408 0.491

0.165 0.213 0.240 0.225 0.159 0.419 0.369

0.273 0.259 0.309 0.264 0.244 0.408 0.491

0.165 0.213 0.240 0.225 0.159 0.419 0.369

0.273 0.259 0.309 0.264 0.244 0.408 0.491

TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

ROTOR BLADE ROW - NASA TASK IV-B											
BLADE ELEMENT PERFORMANCE RESULTS											
POINT NUMBER 8 READING NUMBER 577 DATE 10/ 7/1970											
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	CHBR LN INCID ANG	MN CHBR LN	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	INLET REL
1	69.66	-2.34	61.28	8.38		551.39	1576.06	547.31	-22.37	1476.63	
2	68.55	-1.01	60.25	8.30		565.94	1542.54	563.74	-9.98	1435.01	
3	61.62	-1.59	57.07	4.55		703.38	1479.42	703.10	-19.55	1301.66	
4	54.17	-0.78	53.90	0.27		818.88	1395.91	816.25	-11.13	1130.53	
5	50.75	-0.74	50.80	-0.05		835.36	1389.52	824.05	-10.60	1008.153	
6	48.07	-2.39	48.58	-0.51		815.57	1193.06	782.56	-32.63	871.38	
7	48.41	-2.68	48.02	-0.39		770.47	1128.12	731.95	-34.21	824.75	
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	REL DEV ANG-TE	REL TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL	EXIT REL
1	61.38	54.13	57.52	3.86	8.29	765.00	935.47	447.59	619.00	820.39	
2	54.46	45.19	57.18	-2.72	14.10	831.27	1007.36	585.00	588.80	818.81	
3	47.67	37.67	52.85	-5.18	13.95	863.89	1015.45	683.73	527.80	758.68	
4	45.88	33.89	46.10	-0.22	8.29	814.59	971.08	675.65	453.83	696.70	
5	40.26	39.64	34.70	5.56	10.49	794.81	801.97	609.20	504.66	515.86	
6	24.23	40.90	16.84	7.39	23.85	912.37	760.75	680.41	589.42	306.17	
7	14.32	44.52	10.70	5.62	32.09	961.63	722.67	675.85	664.55	197.85	
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	DIFFUSION FACTOR						
1	1454.26	0.503	1.438	0.818	0.421						
2	1425.02	0.517	1.410	1.038	0.478						
3	1287.11	0.657	1.301	0.972	0.428						
4	1141.66	0.772	1.316	0.828	0.394						
5	397.93	0.723	1.243	0.739	0.480						
6	535.75	0.774	1.132	0.869	0.482						
7	790.54	0.727	1.084	0.923	0.497						
RADIAL POSITION	ROTOR SPD AT EXIT	EXIT ABS MACH NO	EXIT REL MACH NO	FIXED TOT TEMP RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ RISE	STAT PRESS RISE COEFF		
1	1437.40	0.632	0.773	1.4310	0.218	0.037	0.7685	0.7881	0.304		
2	1407.61	0.699	0.847	1.4610	0.164	0.033	0.8255	0.8407	0.315		
3	1275.58	0.746	0.877	1.6120	-0.012	-0.003	1.0141	1.0129	0.349		
4	1150.53	0.715	0.892	1.7730	0.163	0.032	0.7770	0.7836	0.358		
5	1020.51	0.696	0.702	1.9640	0.154	0.030	0.7951	0.8064	0.408		
6	895.59	0.811	0.676	2.2880	0.124	0.025	0.8629	0.8714	0.449		
7	862.41	0.824	0.682	2.3470	0.119	0.024	0.8785	0.8841	0.466		
RADIAL POSITION	PERCENT TRANSITION	TRAV TOT PRESS RATIO	TRAV TOT TEMP RATIO	FIXED TOT PRESS RATIO	LOSS COEFFICIENT	TOT PRESS LOSS PARAM	ADB EFFICIENCY	POLY MOMEN RISE/ RISE	STAT PRESS RISE COEFF		
1	5.0000	1.890	1.256	1.884	0.258	0.037	0.7685	0.7881	0.304		
2	10.0000	1.964	1.232	1.920	1.248	0.033	0.8255	0.8407	0.315		
3	30.0000	1.877	1.196	1.889	1.197	-0.003	1.0141	1.0129	0.349		
4	50.0000	1.569	1.138	1.513	1.162	0.030	0.7951	0.8064	0.408		
5	70.0000	1.496	1.147	1.493	1.153	0.025	0.8629	0.8714	0.449		
6	90.0000	1.605	1.153	1.574	1.160	0.024	0.8785	0.8841	0.466		
7	95.0000	1.660	1.171	1.590	1.159	0.024	0.8785	0.8841	0.466		

OVERALL PERFORMANCE SUMMARY

STAGE DATA		ROTOR DATA		ROTOR DATA	
FIXED INST.	FIXED INST.	FIXED INST.	FIXED INST.	TRAV. INST.	INST.
1.6125	1.6379	1.6268	1.6379	1.7068	
0.7722	0.7993	0.7993	0.7993	0.9309	
0.7870	0.8128	0.8128	0.8128	0.9359	
Discharge Valve Setting= 10.5					
Cor. Nozzle Weight Flow= 214.4					
Percent Design Speed = 99.9					
IE Check Flow/Moz.Flow = 0.9436					
Assumed IE Flow Coeff. = 0.9850					
TE Check Flow/Moz.Flow = 0.9588					
Assumed TE Flow Coeff. = 0.9500					

100270 TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

		STATOR BLADE ROW - NASA TASK IV-B																		
		BLADE ELEMENT PERFORMANCE RESULTS					PERFORMANCE PARAMETERS													
		POINT NUMBER	8	READING NUMBER	577	DATE	10/7/1970													
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CMR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL					
1	55.56	46.18	39.47	16.09	7.07	753.82	819.08	864.28	623.66	590.97	567.12	685.15	526.44	448.48	492.76					
2	37.54	33.08	39.01	-1.47	-6.72	813.87	822.87	846.89	688.61	644.15	688.61	644.15	568.76	568.76	637.24					
3	37.42	37.42	40.86	-3.44	-4.93	946.89	946.89	946.89	746.88	746.88	746.88	746.88	746.88	746.88	746.88					
4	40.07	40.07	42.26	-1.89	-1.89	983.12	983.12	983.12	736.55	736.55	736.55	736.55	736.55	736.55	736.55					
5	0.93	3.04	-11.13	12.06	13.14	581.21	581.21	581.21	9.42	9.42	581.13	581.13	581.13	581.13	581.13					
6	0.92	3.04	-10.10	13.14	13.14	593.56	593.56	593.56	31.45	31.45	592.71	592.71	592.71	592.71	592.71					
7	-3.71	-1.78	-8.75	5.74	7.32	627.38	627.38	627.38	10.12	10.12	627.15	627.15	627.15	627.15	627.15					
8	-1.78	-1.78	-9.10	39.20	36.08	599.69	599.69	599.69	-31.46	-31.46	598.43	598.43	598.43	598.43	598.43					
9	0.48	0.48	-10.58	11.06	11.06	680.49	680.49	680.49	5.79	5.79	687.44	687.44	687.44	687.44	687.44					
10	-2.13	-2.13	-12.36	10.23	10.23	640.26	640.26	640.26	-23.77	-23.77	637.58	637.58	637.58	637.58	637.58					
DIFFUSION CH1																				
1	0.622	0.622	1.363	1.363	1.363	0.495	0.495	0.495	0.355	0.355	0.495	0.495	0.495	0.495	0.495					
2	0.658	0.658	1.035	1.035	1.035	0.496	0.496	0.496	0.354	0.354	0.496	0.496	0.496	0.496	0.496					
3	0.747	0.747	0.915	0.915	0.915	0.457	0.457	0.457	0.372	0.372	0.457	0.457	0.457	0.457	0.457					
4	0.723	0.723	0.869	0.869	0.869	0.438	0.438	0.438	0.447	0.447	0.438	0.438	0.438	0.438	0.438					
5	0.714	0.714	0.970	0.970	0.970	0.392	0.392	0.392	0.456	0.456	0.392	0.392	0.392	0.392	0.392					
6	0.846	0.846	0.920	0.920	0.920	0.414	0.414	0.414	0.404	0.404	0.414	0.414	0.414	0.414	0.414					
7	0.876	0.876	0.866	0.866	0.866	0.506	0.506	0.506	0.371	0.371	0.506	0.506	0.506	0.506	0.506					
PERCENT DIMENSION	TRAV TOT PRESS RATIO	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS TOT PRESS PARAM	LOSS COEFFICIENT	LOSS ANG	LOSS ANGLE	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF	TRAV TOT PRESS RATIO	EXIT ABS MACH NO	EXIT REL MACH NO	SOLIDITY COEFFICIENT	LOSS TOT PRESS PARAM	LOSS COEFFICIENT	LOSS ANG	LOSS ANGLE	POLY MOMEN RISE/ MEAS T RISE	STAT PRESS RISE COEFF
1	5.0000	0.476	0.476	1.2230	0.131	0.131	0.043	0.043	0.8997	0.334	5.0000	0.476	0.476	1.2230	0.131	0.131	0.043	0.8997	0.334	
2	10.0000	0.470	0.470	1.5440	0.066	0.066	0.021	0.021	0.7585	0.328	10.0000	0.470	0.470	1.5440	0.066	0.066	0.021	0.7585	0.328	
3	30.0000	0.529	0.529	1.6310	0.048	0.048	0.015	0.015	0.7954	0.341	30.0000	0.529	0.529	1.6310	0.048	0.048	0.015	0.7954	0.341	
4	51.0000	0.512	0.512	1.7420	0.019	0.019	0.005	0.005	0.9481	0.417	51.0000	0.512	0.512	1.7420	0.019	0.019	0.005	0.9481	0.417	
5	71.0000	0.536	0.536	1.8000	0.039	0.039	0.010	0.010	1.1078	0.426	71.0000	0.536	0.536	1.8000	0.039	0.039	0.010	1.1078	0.426	
6	90.0000	0.593	0.593	2.0510	0.046	0.046	0.011	0.011	0.8557	0.364	90.0000	0.593	0.593	2.0510	0.046	0.046	0.011	0.8557	0.364	
7	95.0000	0.548	0.548	2.0980	0.073	0.073	0.017	0.017	0.6582	0.330	95.0000	0.548	0.548	2.0980	0.073	0.073	0.017	0.6582	0.330	
OVERALL PERFORMANCE SUMMARY																				
STAGE DATA											STATOR DATA									
FIXED INST. FIXED INST. TRAV. INST.											FIXED INST. FIXED INST. TRAV. INST.									
Total Pressure Ratio = 1.6125											Total Pressure Ratio = 0.9845									
Polytropic Efficiency = 0.7870											Polytropic Efficiency = 0.9683									
Percent Design Speed = 99.9											Percent Design Speed = 99.9									
Cor. Nozzle Weight Flow = 214.4											Cor. Nozzle Weight Flow = 214.4									
IE Check Flow/Noz.Flow = 0.9588											IE Check Flow/Noz.Flow = 0.9305									
Assumed IE Flow Coeff. = 0.9500											Assumed IE Flow Coeff. = 0.9350									
Discharge Valve Setting = 10.5											Discharge Valve Setting = 10.5									

TABLE XVIII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Continued)

100770

		ROTOR BLADE ROW - NASA TASK IV-B															
		BLADE ELEMENT PERFORMANCE RESULTS						ROTOR DATA									
		POINT NUMBER 9		READING NUMBER 578		DATE 10/ 7/1970		STAGE DATA		ROTOR DATA		ROTOR DATA					
								FIXED INST. FIXED INST.		TRAV. INST.		TRAV. INST.					
RADIAL POSITION	1	PEL INLET FLOW ANG	62.04	INLET FLOW ANG	-0.27	INLET LE ANGLE	61.28	INLET MN CHR LN	7.76	INLET INCID ANG	7.76	INLET VELOCITY	561.18	INLET AX VELOCITY	557.48	INLET TANG VEL	1455.70
	2	PEL INLET FLOW ANG	64.07	INLET FLOW ANG	-0.10	INLET LE ANGLE	60.25	INLET MN CHR LN	7.62	INLET INCID ANG	7.62	INLET VELOCITY	575.74	INLET AX VELOCITY	573.08	INLET TANG VEL	1424.90
	3	PEL INLET FLOW ANG	61.42	INLET FLOW ANG	-0.65	INLET LE ANGLE	57.07	INLET MN CHR LN	4.35	INLET INCID ANG	4.35	INLET VELOCITY	702.33	INLET AX VELOCITY	702.28	INLET TANG VEL	1289.05
	4	PEL INLET FLOW ANG	53.09	INLET FLOW ANG	-0.56	INLET LE ANGLE	53.90	INLET MN CHR LN	-0.81	INLET INCID ANG	-0.81	INLET VELOCITY	865.85	INLET AX VELOCITY	863.11	INLET TANG VEL	1149.16
	5	PEL INLET FLOW ANG	50.01	INLET FLOW ANG	-1.31	INLET LE ANGLE	50.80	INLET MN CHR LN	-0.79	INLET INCID ANG	-0.79	INLET VELOCITY	864.48	INLET AX VELOCITY	852.63	INLET TANG VEL	1016.55
	6	PEL INLET FLOW ANG	47.96	INLET FLOW ANG	-2.19	INLET LE ANGLE	48.58	INLET MN CHR LN	-0.62	INLET INCID ANG	-0.62	INLET VELOCITY	815.56	INLET AX VELOCITY	782.65	INLET TANG VEL	868.01
	7	PEL INLET FLOW ANG	48.25	INLET FLOW ANG	-2.01	INLET LE ANGLE	48.02	INLET MN CHR LN	0.23	INLET INCID ANG	0.23	INLET VELOCITY	765.79	INLET AX VELOCITY	727.82	INLET TANG VEL	815.47
RADIAL POSITION	1	REL EXIT FLOW ANG	60.99	REL EXIT FLOW ANG	50.55	REL DEV ANGLE	3.47	REL TURN ANGLE	8.06	REL TURN ANGLE	8.06	EXIT VELOCITY	751.18	EXIT AX VELOCITY	476.50	EXIT TANG VEL	859.52
	2	REL EXIT FLOW ANG	55.21	REL EXIT FLOW ANG	41.47	REL DEV ANGLE	-1.97	REL TURN ANGLE	12.86	REL TURN ANGLE	12.86	EXIT VELOCITY	809.36	EXIT AX VELOCITY	605.41	EXIT TANG VEL	771.41
	3	REL EXIT FLOW ANG	42.35	REL EXIT FLOW ANG	35.86	REL DEV ANGLE	-4.50	REL TURN ANGLE	13.07	REL TURN ANGLE	13.07	EXIT VELOCITY	853.45	EXIT AX VELOCITY	691.58	EXIT TANG VEL	777.59
	4	REL EXIT FLOW ANG	46.55	REL EXIT FLOW ANG	32.12	REL DEV ANGLE	0.45	REL TURN ANGLE	6.54	REL TURN ANGLE	6.54	EXIT VELOCITY	807.05	EXIT AX VELOCITY	682.91	EXIT TANG VEL	720.84
	5	REL EXIT FLOW ANG	40.51	REL EXIT FLOW ANG	37.87	REL DEV ANGLE	5.61	REL TURN ANGLE	9.70	REL TURN ANGLE	9.70	EXIT VELOCITY	798.40	EXIT AX VELOCITY	627.15	EXIT TANG VEL	532.00
	6	REL EXIT FLOW ANG	22.45	REL EXIT FLOW ANG	38.56	REL DEV ANGLE	16.84	REL TURN ANGLE	25.51	REL TURN ANGLE	25.51	EXIT VELOCITY	949.69	EXIT AX VELOCITY	731.98	EXIT TANG VEL	298.34
	7	REL EXIT FLOW ANG	16.43	REL EXIT FLOW ANG	42.92	REL DEV ANGLE	10.70	REL TURN ANGLE	31.83	REL TURN ANGLE	31.83	EXIT VELOCITY	975.52	EXIT AX VELOCITY	703.56	EXIT TANG VEL	207.41
RADIAL POSITION	1	ROTOR SPD AT EXIT	1753.78	INLET MACH NO	0.513	INLET REL MACH NO	1.426	AXIAL VEL RATIO	0.855	DIFFUSION FACTOR	0.499						
	2	ROTOR SPD AT EXIT	1423.87	INLET MACH NO	0.527	INLET REL MACH NO	1.408	AXIAL VEL RATIO	1.055	DIFFUSION FACTOR	0.428						
	3	ROTOR SPD AT EXIT	1281.07	INLET MACH NO	0.655	INLET REL MACH NO	1.370	AXIAL VEL RATIO	0.985	DIFFUSION FACTOR	0.398						
	4	ROTOR SPD AT EXIT	1140.74	INLET MACH NO	0.824	INLET REL MACH NO	1.369	AXIAL VEL RATIO	0.791	DIFFUSION FACTOR	0.395						
	5	ROTOR SPD AT EXIT	992.12	INLET MACH NO	0.823	INLET REL MACH NO	1.270	AXIAL VEL RATIO	0.736	DIFFUSION FACTOR	0.429						
	6	ROTOR SPD AT EXIT	894.86	INLET MACH NO	0.774	INLET REL MACH NO	1.130	AXIAL VEL RATIO	0.922	DIFFUSION FACTOR	0.451						
	7	ROTOR SPD AT EXIT	769.90	INLET MACH NO	0.722	INLET REL MACH NO	1.055	AXIAL VEL RATIO	0.967	DIFFUSION FACTOR	0.462						
RADIAL POSITION	1	ROTOR SPD AT EXIT	1438.23	EXIT MACH NO	0.624	EXIT REL MACH NO	0.817	TOT PRESS LOSS PARAM	0.033	TOT PRESS LOSS PARAM	0.033	TOT PRESS LOSS PARAM	0.033	TOT PRESS LOSS PARAM	0.033	TOT PRESS LOSS PARAM	0.033
	2	ROTOR SPD AT EXIT	1406.47	EXIT MACH NO	0.685	EXIT REL MACH NO	0.899	TOT PRESS LOSS PARAM	0.028	TOT PRESS LOSS PARAM	0.028	TOT PRESS LOSS PARAM	0.028	TOT PRESS LOSS PARAM	0.028	TOT PRESS LOSS PARAM	0.028
	3	ROTOR SPD AT EXIT	1277.54	EXIT MACH NO	0.741	EXIT REL MACH NO	0.903	TOT PRESS LOSS PARAM	-0.008	TOT PRESS LOSS PARAM	-0.008	TOT PRESS LOSS PARAM	-0.008	TOT PRESS LOSS PARAM	-0.008	TOT PRESS LOSS PARAM	-0.008
	4	ROTOR SPD AT EXIT	1149.60	EXIT MACH NO	0.710	EXIT REL MACH NO	0.874	TOT PRESS LOSS PARAM	0.029	TOT PRESS LOSS PARAM	0.029	TOT PRESS LOSS PARAM	0.029	TOT PRESS LOSS PARAM	0.029	TOT PRESS LOSS PARAM	0.029
	5	ROTOR SPD AT EXIT	1019.69	EXIT MACH NO	0.792	EXIT REL MACH NO	0.726	TOT PRESS LOSS PARAM	0.031	TOT PRESS LOSS PARAM	0.031	TOT PRESS LOSS PARAM	0.031	TOT PRESS LOSS PARAM	0.031	TOT PRESS LOSS PARAM	0.031
	6	ROTOR SPD AT EXIT	894.86	EXIT MACH NO	0.849	EXIT REL MACH NO	0.713	TOT PRESS LOSS PARAM	0.025	TOT PRESS LOSS PARAM	0.025	TOT PRESS LOSS PARAM	0.025	TOT PRESS LOSS PARAM	0.025	TOT PRESS LOSS PARAM	0.025
	7	ROTOR SPD AT EXIT	861.71	EXIT MACH NO	0.871	EXIT REL MACH NO	0.672	TOT PRESS LOSS PARAM	0.024	TOT PRESS LOSS PARAM	0.024	TOT PRESS LOSS PARAM	0.024	TOT PRESS LOSS PARAM	0.024	TOT PRESS LOSS PARAM	0.024
RADIAL POSITION	1	PERCENT IMMERSION	5.0000	TRAV TOT PRESS RATIO	1.830	TRAV TOT PRESS RATIO	1.244	FIXED TOT PRESS RATIO	1.843	PERFORMANCE PARAMETERS							
	2	PERCENT IMMERSION	10.0000	TRAV TOT PRESS RATIO	1.901	TRAV TOT PRESS RATIO	1.215	FIXED TOT PRESS RATIO	1.874	PERFORMANCE PARAMETERS							
	3	PERCENT IMMERSION	30.0000	TRAV TOT PRESS RATIO	1.850	TRAV TOT PRESS RATIO	1.183	FIXED TOT PRESS RATIO	1.874	PERFORMANCE PARAMETERS							
	4	PERCENT IMMERSION	50.0000	TRAV TOT PRESS RATIO	1.503	TRAV TOT PRESS RATIO	1.135	FIXED TOT PRESS RATIO	1.468	PERFORMANCE PARAMETERS							
	5	PERCENT IMMERSION	70.0000	TRAV TOT PRESS RATIO	1.460	TRAV TOT PRESS RATIO	1.135	FIXED TOT PRESS RATIO	1.443	PERFORMANCE PARAMETERS							
	6	PERCENT IMMERSION	90.0000	TRAV TOT PRESS RATIO	1.589	TRAV TOT PRESS RATIO	1.151	FIXED TOT PRESS RATIO	1.557	PERFORMANCE PARAMETERS							
	7	PERCENT IMMERSION	95.0000	TRAV TOT PRESS RATIO	1.636	TRAV TOT PRESS RATIO	1.165	FIXED TOT PRESS RATIO	1.564	PERFORMANCE PARAMETERS							
OVERALL PERFORMANCE SUMMARY											STAGE DATA		ROTOR DATA		ROTOR DATA		
											FIXED INST. FIXED INST.		TRAV. INST.		TRAV. INST.		
											1.5754		1.6000		1.6550		
											0.7726		0.8007		0.9346		
											0.7866		0.8335		0.9391		
											Percent Design Speed = 99.9		Discharge Valve Setting = 12.3				
											Cor. Nozzle Weight Flow = 216.9						
											LP Check Flow/Noz.Flow = 0.9395		TF Check Flow/Inst.Flow = 0.940				
											Assumed LE Flow Coeff. = 0.9870		Assumed TE Flow Coeff. = 0.9500				

TABLE XVII - TASK II STAGE RADIAL DISTORTION BLADE ELEMENT DATA (Concluded)

100270		STATOR BLADE ROW - NASA TASK IV-B								
POINT NUMBER 9		BLADE ELEMENT PERFORMANCE RESULTS								
READING NUMBER 578		DATE 10/ 7/1970								
RADIAL POSITION	REL INLET FLOW ANG	ABS INLET FLOW ANG	CHBR LN LE ANGLE	INCID ANG MN CHBR LN	INCID ANG SUCT SURF	INLET ABS VELOCITY	INLET REL VELOCITY	INLET AX VELOCITY	INLET ABS TANG VEL	INLET REL TANG VEL
1	52.06	39.47	12.59	732.36	586.36	453.38	581.58	537.04	498.58	423.71
2	42.49	39.11	-3.38	853.99	816.13	820.27	664.19	770.91	627.41	575.62
3	35.73	39.01	-8.48	820.27	800.69	770.91	627.41	575.62	498.58	423.71
4	31.32	39.80	-5.22	1003.80	770.91	627.41	575.62	498.58	423.71	370.26
5	35.64	40.86	-6.51	664.19	627.41	575.62	498.58	423.71	370.26	30.25
6	35.71	42.22	-6.51	664.19	627.41	575.62	498.58	423.71	370.26	16.15
7	39.14	42.76	-3.62	664.19	627.41	575.62	498.58	423.71	370.26	8.44
RADIAL POSITION	REL EXIT FLOW ANG	ABS EXIT FLOW ANG	CHBR LN TE ANGLE	DEV ANG TE	TURN ANGLE	EXIT ABS VELOCITY	EXIT REL VELOCITY	EXIT AX VELOCITY	EXIT ABS TANG VEL	EXIT REL TANG VEL
1	1.55	11.13	12.68	50.51	598.50	598.27	599.79	644.41	617.66	624.45
2	2.89	10.10	12.99	39.60	600.57	600.57	600.57	644.41	617.66	624.45
3	0.25	8.87	34.98	34.98	644.41	644.41	644.41	644.41	644.41	644.41
4	-2.98	8.75	5.77	34.30	618.94	618.94	618.94	618.94	618.94	618.94
5	-2.32	9.10	6.78	37.95	625.96	625.96	625.96	625.96	625.96	625.96
6	-0.98	10.58	11.56	34.74	713.87	713.87	713.87	713.87	713.87	713.87
7	-1.45	12.36	10.91	40.59	664.75	664.75	664.75	664.75	664.75	664.75
RADIAL POSITION	ROTOR SPD AT INLET	INLET ABS MACH NO	INLET REL MACH NO	AXIAL VEL RATIO	SOLIDITY	LOSS COEFFICIENT	LOSS PARAM	ADP EFFICIENCY	POLY MOMEN RISE/ STAY PRESS	DIFFUSION FACTOR
1	0.611	0.492	1.5230	0.132	0.043	1.0141	0.319	0.440	0.339	0.451
2	0.672	0.517	1.5440	0.051	0.017	0.7872	0.311	0.421	0.335	0.401
3	0.741	0.547	1.6310	0.055	0.016	0.7865	0.306	0.401	0.414	0.398
4	0.719	0.532	1.7420	0.036	0.010	0.9700	0.384	0.418	0.428	0.418
5	0.723	0.539	1.8800	0.045	0.011	0.9938	0.387	0.418	0.428	0.418
6	0.896	0.616	2.0510	0.045	0.011	0.8795	0.383	0.418	0.428	0.418
7	0.900	0.572	2.0980	0.073	0.017	0.7156	0.350	0.418	0.428	0.418
RADIAL POSITION	PERCENT DIMENSION	TRAV TOT PRESS RATIO	TRAV TOT PRESS RATIO	FIXED TOT PRESS RATIO	TEMP RATIO	LOSS COEFFICIENT	LOSS PARAM	ADP EFFICIENCY	POLY MOMEN RISE/ STAY PRESS	DIFFUSION FACTOR
1	5.0000	1.001	0.991	0.971	1.000	0.132	0.043	1.0141	0.319	0.451
2	10.0000	0.972	0.997	0.987	1.000	0.051	0.017	0.7872	0.311	0.401
3	30.0000	0.966	0.998	0.983	1.000	0.055	0.016	0.7865	0.306	0.401
4	50.0000	0.995	1.005	0.994	1.000	0.036	0.010	0.9700	0.384	0.418
5	70.0000	0.999	1.005	0.999	1.000	0.045	0.011	0.9938	0.387	0.418
6	90.0000	0.968	1.009	0.981	1.000	0.045	0.011	0.8795	0.383	0.418
7	95.0000	0.917	0.996	0.989	1.000	0.073	0.017	0.7156	0.350	0.418
OVERALL PERFORMANCE SUMMARY										
STATOR DATA STATOR DATA STATOR DATA										
FIXED INST. FIXED INST. TRAV. INST.										
Total Pressure Ratio = 1.5754 0.9846 0.9793										
Polytropic Efficiency = 0.7866 0.9669 0.8196										
Percent Design Speed = 99.9 Discharge Valve Setting = 12.3										
Cor. Nozzle Weight Flow = 216.9										
IE Check Flow/Noz.Flow = 0.9540 TE Check Flow/Noz.Flow = 0.9248										
Assumed IE Flow Coeff. = 0.9500 Assumed TE Flow Coeff. = 0.9350										

APPENDIX H

LISTING OF TASK II STAGE CIRCUMFERENTIAL
DISTORTION FLOW SURVEY DATA

TABLE XIX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL; WITH INLET GUIDE VANES AND CASING TREATMENT

CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	SLOPE = -1.29	
								RADIUS = 17.415	IMMERSION NO. = 0.18
0.	13.91	11.88	518.69	0.66	524.82	524.79	0.481		
15.00	13.83	11.87	518.69	0.88	515.87	515.80	0.472		
30.00	13.92	11.83	518.69	1.17	511.15	511.04	0.487		
45.00	13.84	11.80	518.69	1.46	506.70	506.54	0.482		
60.00	13.87	11.73	518.69	1.23	510.36	510.24	0.496		
75.00	13.94	11.65	518.69	0.99	517.72	517.64	0.512		
90.00	13.93	11.55	518.69	1.46	510.14	509.95	0.524		
105.00	13.89	11.45	518.69	1.92	509.16	508.83	0.533		
120.00	13.93	11.27	518.69	2.08	505.57	605.17	0.559		
135.00	12.17	11.09	518.69	2.24	405.10	404.79	0.368		
150.00	12.17	11.11	518.69	0.14	400.54	400.54	0.363		
165.00	12.16	11.12	518.69	-1.96	396.20	395.97	0.359		
180.00	12.21	11.14	518.69	-3.21	401.48	400.85	0.364		
195.00	12.07	11.16	518.69	-4.46	370.16	369.04	0.335		
210.00	12.17	11.23	518.69	-4.89	374.48	373.12	0.339		
225.00	12.18	11.31	518.69	-5.32	363.17	361.60	0.329		
240.00	13.94	11.55	518.69	-4.47	517.72	517.28	0.525		
255.00	13.94	11.79	518.69	-3.61	509.13	508.06	0.494		
270.00	13.99	11.86	518.69	-2.28	536.16	535.74	0.492		
285.00	13.97	11.93	518.69	-0.94	524.26	524.19	0.480		
300.00	13.90	11.92	518.69	-0.72	517.32	517.28	0.473		
315.00	13.80	11.91	518.69	-0.46	506.65	506.47	0.463		
330.00	13.90	11.90	518.69	-0.02	521.12	521.12	0.477		
345.00	13.80	11.88	518.69	0.45	510.09	510.08	0.467		

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
0.	1431.37	6.08	1425.29	69.79	1518.84	1.391	1.60
15.00	1431.37	7.90	1423.48	70.08	1514.05	1.386	1.57
30.00	1431.37	10.82	1420.55	69.50	1516.56	1.390	1.62
45.00	1431.37	13.40	1417.97	69.63	1512.57	1.386	1.60
60.00	1431.37	11.56	1419.81	69.17	1519.12	1.393	1.63
75.00	1431.37	9.68	1421.70	68.58	1527.15	1.403	1.68
90.00	1431.37	14.52	1416.85	68.09	1527.19	1.405	1.70
105.00	1431.37	19.44	1411.93	67.71	1525.97	1.405	1.72
120.00	1431.37	22.02	1409.36	66.76	1533.79	1.416	1.78
135.00	1431.37	15.65	1415.52	74.04	1472.26	1.336	1.13
150.00	1431.37	1.00	1430.37	74.36	1485.39	1.347	1.12
165.00	1431.37	-13.53	1444.90	71.67	1498.18	1.359	1.11
180.00	1431.37	-22.46	1453.83	74.59	1508.08	1.368	1.13
195.00	1431.37	-28.76	1460.13	75.82	1506.05	1.364	1.05
210.00	1431.37	-31.92	1463.29	75.70	1510.11	1.368	1.05
225.00	1431.37	-33.69	1465.06	76.14	1509.03	1.366	1.03
240.00	1431.37	-44.46	1475.83	69.91	1581.73	1.455	1.70
255.00	1431.37	-33.97	1465.34	69.84	1561.00	1.432	1.63
270.00	1431.37	-21.28	1452.65	69.76	1548.30	1.419	1.64
285.00	1431.37	-8.58	1439.95	70.00	1532.40	1.419	1.61
300.00	1431.37	-6.46	1437.84	70.21	1528.06	1.399	1.58
315.00	1431.37	-4.37	1435.74	70.97	1522.45	1.392	1.54
330.00	1431.37	-0.20	1431.57	70.00	1528.47	1.395	1.59
345.00	1431.37	4.01	1427.86	70.34	1515.77	1.386	1.55

TABLE XIX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMPRESSION NO. #	PLANE NO. IMPRESSION NO. #	RADIUS #	SLOPE #	CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	REL. MACH NO.	LOCAL MACH NO.
0.	14.00	11.52	518.69	1.34	581.37	581.21	0.535					
15.00	13.93	11.51	518.69	1.44	575.92	575.74	0.530					
30.00	13.94	11.48	518.69	1.87	580.18	579.87	0.534					
45.00	13.94	11.44	518.69	2.29	584.26	583.79	0.538					
60.00	13.94	11.37	518.69	2.35	593.44	592.94	0.547					
75.00	13.95	11.30	518.69	2.41	603.39	602.86	0.557					
90.00	13.95	11.20	518.69	3.00	625.29	624.43	0.578					
105.00	13.94	11.09	518.69	3.60	628.22	626.99	0.581					
120.00	13.89	11.06	518.69	3.29	625.96	624.93	0.579					
135.00	13.99	11.04	518.69	2.99	381.34	380.82	0.346					
150.00	11.98	11.00	518.69	0.75	387.23	387.20	0.351					
165.00	11.97	10.97	518.69	-1.50	393.05	392.91	0.356					
180.00	12.07	11.01	518.69	-4.07	402.13	401.12	0.365					
195.00	11.98	11.05	518.69	-6.84	377.94	375.40	0.342					
210.00	12.01	11.16	518.69	-7.14	359.83	357.04	0.326					
225.00	12.00	11.27	518.69	-7.64	333.03	330.08	0.301					
240.00	13.94	11.34	518.69	-5.96	597.00	594.57	0.551					
255.00	13.94	11.41	518.69	-4.28	588.05	586.41	0.542					
270.00	13.96	11.50	518.69	-3.05	579.67	578.85	0.534					
285.00	13.97	11.58	518.69	-1.82	570.15	569.87	0.524					
300.00	13.96	11.58	518.69	-0.72	569.24	569.20	0.523					
315.00	13.93	11.58	518.69	0.39	565.97	565.96	0.520					
330.00	13.94	11.56	518.69	0.81	570.51	570.46	0.525					
345.00	13.90	11.54	518.69	1.23	568.95	568.82	0.523					

TABLE XIX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO. = 0.95	TOT. PRESSURE		STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
CIPC. POSITION	13.79	13.77	10.90	518.69	0.07	636.63	636.62	0.590
	13.77	13.80	10.97	518.69	0.31	625.66	625.65	0.579
	13.80	13.78	10.97	518.69	1.62	628.84	628.59	0.582
	12.03	12.03	10.95	518.69	3.62	629.29	628.03	0.582
	12.02	12.02	10.06	518.69	2.85	557.52	556.82	0.512
	12.01	12.01	10.19	518.69	-1.38	536.54	536.39	0.492
	13.57	13.57	10.51	518.69	-7.41	482.40	478.38	0.440
	13.64	13.64	11.91	518.69	-6.68	478.35	475.11	0.436
	13.68	13.68	11.85	518.69	-1.05	495.00	494.92	0.452
	13.74	13.74	11.52	518.69	3.24	546.87	545.49	0.501
	13.82	13.82	11.23	518.69	2.77	590.01	589.32	0.544
			11.11	518.69	0.77	614.05	613.99	0.567
CIPC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW	
27.98	1431.78	0.72	1431.06	66.02	1566.28	1.450	3.28	
57.98	1431.78	3.37	1428.44	66.35	1559.42	1.442	3.24	
87.98	1431.78	17.83	1413.95	66.03	1547.38	1.432	3.26	
117.98	1431.78	39.78	1392.01	65.72	1527.12	1.413	3.25	
147.98	1431.78	27.74	1404.04	68.37	1510.43	1.388	2.61	
177.98	1431.78	-12.92	1444.70	69.63	1541.06	1.413	2.53	
207.98	1431.78	-62.21	1493.99	72.24	1568.71	1.432	2.31	
237.98	1431.78	-55.62	1487.40	72.89	1561.44	1.425	2.60	
267.98	1431.78	-9.08	1440.86	71.04	1528.49	1.392	2.70	
297.98	1431.78	30.90	1400.88	68.72	1506.34	1.360	2.92	
327.98	1431.78	28.51	1403.27	67.82	1521.99	1.403	3.10	
357.98	1431.78	8.25	1423.53	66.67	1550.30	1.432	3.21	

TABLE XIX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO.	α	RADIUS	SLOPE	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
	0.95	13.797	4.85				
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.90	10.38	518.69	0.33	704.73	704.72	0.658
57.98	13.89	10.32	518.69	0.27	709.94	709.94	0.663
87.98	13.96	10.35	518.69	1.07	712.40	712.28	0.666
117.98	13.86	10.30	518.69	2.62	711.26	710.52	0.665
147.98	11.92	9.42	518.69	2.35	633.80	633.27	0.587
177.98	11.97	9.66	518.69	-7.40	606.80	601.26	0.560
207.98	11.92	10.19	518.69	-12.32	520.62	508.63	0.477
237.98	13.83	11.58	518.69	-7.32	553.69	549.18	0.509
267.98	13.91	11.28	518.69	-2.40	600.03	599.51	0.554
297.98	13.90	10.69	518.69	-0.94	645.62	645.53	0.599
327.98	13.90	10.66	518.69	0.46	672.70	672.68	0.626
357.98	13.94	10.47	518.69	1.47	697.23	697.00	0.650
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.
27.98	1134.00	4.06	1129.94	58.05	1331.69	1.243	3.77
57.98	1134.00	3.32	1130.68	57.88	1335.09	1.247	3.78
87.98	1134.00	13.34	1120.66	57.56	1327.86	1.241	3.61
117.98	1134.00	32.46	1101.54	57.18	1310.81	1.225	3.78
147.98	1134.00	26.02	1107.98	60.25	1276.18	1.182	3.03
177.98	1134.00	-78.06	1212.06	63.62	1352.99	1.249	2.93
207.98	1134.00	-111.07	1245.07	67.78	1344.95	1.232	2.57
237.98	1134.00	-70.51	1204.51	65.49	1323.80	1.216	3.17
267.98	1134.00	-25.10	1159.10	62.65	1304.96	1.204	3.40
297.98	1134.00	-10.65	1144.65	60.58	1314.13	1.218	3.57
327.98	1134.00	5.39	1128.61	59.20	1313.87	1.222	3.67
357.98	1134.00	17.83	1116.18	58.02	1315.92	1.228	3.75

**TABLE XIX - TASK 11 STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)**

PLANE NO. IMMERISION NO.	α	RADIUS	SLOPE	WHEEL SPEED	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	0.95	9.910	15.45	814.52	13.91	10.47	518.69	-2.04	672.43	1.002	2.37
57.98				814.52	13.94	10.40	518.69	-2.10	661.92	1.009	2.39
87.98				814.52	13.97	10.44	518.69	-2.02	680.80	1.008	2.39
117.98				814.52	13.86	10.37	518.69	2.82	679.17	0.966	2.37
147.98				814.52	12.07	9.57	518.69	9.38	610.89	0.866	1.91
177.98				814.52	12.10	9.67	518.69	#12.65	600.40	1.029	1.87
207.98				814.52	12.07	10.25	518.69	#24.26	516.88	1.036	1.57
237.98				814.52	13.86	11.29	518.69	#15.67	576.57	1.031	2.06
267.98				814.52	14.00	11.20	518.69	#2.35	598.46	0.952	2.21
297.98				814.52	13.89	10.78	518.69	0.81	636.99	0.953	2.29
327.98				814.52	13.91	10.68	518.69	-0.67	648.61	0.974	2.32
357.98				814.52	13.90	10.47	518.69	0.02	671.43	0.984	2.36
27.98				814.52	-23.91	838.43	838.43	51.29	1074.50	1.002	2.37
57.98				814.52	-25.00	839.53	839.53	50.94	1081.17	1.009	2.39
87.98				814.52	-23.93	838.45	838.45	50.96	1079.47	1.008	2.39
117.98				814.52	33.44	781.08	781.08	49.03	1034.52	0.966	2.37
147.98				814.52	99.61	714.92	714.92	49.87	935.08	0.866	1.91
177.98				814.52	-131.52	946.05	946.05	58.23	1112.74	1.029	1.87
207.98				814.52	-212.39	1026.91	1026.91	65.35	1129.87	1.036	1.57
237.98				814.52	-155.75	970.27	970.27	60.22	1117.86	1.031	2.06
267.98				814.52	-24.54	839.06	839.06	54.52	1030.33	0.952	2.21
297.98				814.52	9.04	805.48	805.48	51.68	1026.63	0.953	2.29
327.98				814.52	-7.63	822.15	822.15	51.73	1047.17	0.974	2.32
357.98				814.52	0.18	814.35	814.35	50.49	1059.45	0.984	2.36

TABLE XIX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. = 1.51		RADIUS = 17.881		SLOPE = -0.83			
IMMERSON NO. = 1							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	23.39	17.76	614.48	36.23	747.22	602.73	0.639
45.00	23.32	17.67	616.02	36.22	751.00	605.84	0.642
75.00	23.31	17.73	617.22	36.29	747.00	602.08	0.638
105.00	23.22	17.38	616.33	36.93	767.24	613.29	0.657
135.00	22.16	17.51	609.29	43.38	690.36	501.74	0.590
165.00	24.94	18.89	660.17	47.95	778.09	521.12	0.643
195.00	25.37	18.88	676.00	49.04	810.81	531.47	0.663
225.00	27.96	19.64	711.39	49.32	906.30	590.82	0.729
255.00	24.57	17.35	682.70	46.96	880.79	601.11	0.722
285.00	24.29	17.31	653.37	46.27	851.92	588.65	0.713
315.00	23.74	17.62	623.63	39.40	782.51	604.64	0.667
345.00	23.81	17.75	622.54	36.59	776.25	623.25	0.662
CIRC. POSITION	WHEEL SPEED	ABS TANG. VELOCITY	REL. TANG. VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	1403.92	441.65	962.27	57.94	1135.45	0.972	3.55
45.00	1403.92	443.80	969.12	57.75	1135.29	0.971	3.54
75.00	1403.92	442.16	961.76	57.95	1134.67	0.969	3.52
105.00	1403.92	461.01	942.91	56.96	1124.81	0.963	3.54
135.00	1403.92	474.18	929.74	61.65	1056.49	0.903	2.90
165.00	1403.92	577.51	826.11	57.76	974.74	0.807	3.04
195.00	1403.92	612.34	791.58	56.12	953.45	0.780	3.04
225.00	1403.92	687.26	716.66	50.50	928.80	0.747	3.40
255.00	1403.92	643.78	669.14	51.66	969.10	0.795	3.18
285.00	1403.92	615.29	788.62	53.26	984.09	0.824	3.23
315.00	1403.92	496.71	907.21	56.32	1090.24	0.929	3.50
345.00	1403.92	462.73	941.19	56.49	1128.84	0.962	3.64

TABLE XIX - TASK 11 STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO., IMPRESSION NO. = 1.51 3	RADIUS = 14.056	SLOPE = 3.14												
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	REL. MACH NO.	LOCAL WT. FLOW		
15.00	23.06	16.72	607.85	39.48	799.72	617.25	0.693							
45.00	23.10	16.73	609.15	39.32	802.80	621.10	0.695							
75.00	23.13	16.78	610.42	39.28	801.20	620.19	0.692							
105.00	23.03	16.59	609.84	39.58	808.81	623.39	0.700							
135.00	22.39	16.67	599.51	45.28	763.03	536.91	0.663							
165.00	23.52	17.37	630.16	50.24	792.71	507.00	0.673							
195.00	23.92	17.52	647.19	56.57	827.85	455.86	0.695							
225.00	26.33	18.20	666.27	55.17	895.88	511.28	0.746							
255.00	23.06	15.99	633.66	47.78	869.34	584.17	0.742							
285.00	22.75	16.27	613.13	44.53	819.64	584.28	0.708							
315.00	23.25	16.70	605.81	41.59	810.88	605.85	0.704							
345.00	23.20	16.72	607.94	40.52	807.52	613.86	0.700							
CIRC. POSITION	WHFEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	REL. MACH NO.	LOCAL WT. FLOW							
15.00	1155.29	508.48	646.81	46.34	0.774	0.774	3.88							
45.00	1155.29	508.64	646.65	46.15	0.776	0.776	3.90							
75.00	1155.29	507.24	648.05	46.26	0.775	0.775	3.90							
105.00	1155.29	515.31	639.98	45.75	0.774	0.774	3.89							
135.00	1155.29	542.16	613.13	48.79	0.708	0.708	3.39							
165.00	1155.29	609.37	545.92	47.12	0.632	0.632	3.18							
195.00	1155.29	690.43	464.86	45.56	0.547	0.547	2.79							
225.00	1155.29	734.81	420.48	39.43	0.531	0.531	3.24							
255.00	1155.29	643.82	511.47	41.20	0.663	0.663	3.42							
285.00	1155.29	574.82	580.47	44.81	0.712	0.712	3.56							
315.00	1155.29	537.75	617.54	45.55	0.752	0.752	3.83							
345.00	1155.29	524.66	630.63	45.77	0.763	0.763	3.87							

**TABLE XIX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)**

PLANE NO. IMMERSED NO. #	1.51	RADIUS = 11.030		SLOPE = 11.17					
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	REL. MACH NO.	LOCAL WT. FLOW
15.00	23.17	16.03	599.80	44.89	840.32	595.30	0.738	0.591	2.20
45.00	23.01	15.96	600.14	44.65	837.96	594.07	0.735	0.590	2.18
75.00	23.06	16.07	600.62	45.01	833.12	586.98	0.730	0.586	2.17
105.00	22.91	15.84	599.94	44.80	841.02	596.77	0.738	0.592	2.18
135.00	22.22	15.85	592.71	49.17	803.37	525.26	0.706	0.531	1.92
165.00	23.13	16.69	614.38	58.52	806.95	421.16	0.695	0.409	1.56
195.00	23.00	16.75	624.39	64.96	804.05	340.29	0.687	0.328	1.24
225.00	24.90	16.98	644.81	60.34	891.97	441.45	0.757	0.391	1.61
255.00	23.34	15.84	612.68	45.23	870.57	613.09	0.758	0.590	2.20
285.00	23.40	16.06	601.13	46.16	850.52	589.08	0.747	0.578	2.18
315.00	23.09	16.00	598.88	45.90	838.69	583.69	0.737	0.578	2.15
345.00	23.26	16.02	599.80	45.12	845.89	596.50	0.742	0.589	2.20

TABLE XIX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	WHEEL SPEED	WHEEL ANGLE	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	REL. VELOCITY	LOCAL WT. FLOW
6.83	22.82	19.49	627.15	0.85	575.99	575.93	0.480	1407.95	67.63	1399.44	67.63	1.260	1518.29	3.25
36.83	22.89	19.48	629.17	-0.11	583.83	583.83	0.486	1407.95	67.49	1409.04	67.49	1.269	1525.21	3.29
66.83	22.98	19.48	628.18	-0.45	590.40	590.39	0.492	1407.95	67.32	1412.58	67.32	1.275	1530.99	3.33
96.83	22.75	19.56	625.43	-0.09	564.32	564.32	0.470	1407.95	68.17	1408.80	68.17	1.265	1517.62	3.20
126.83	22.33	19.41	622.94	-1.02	542.11	542.02	0.452	1407.95	69.08	1417.63	69.08	1.265	1517.71	3.05
156.83	22.35	19.47	638.71	1.74	544.81	544.06	0.448	1407.95	68.64	1391.39	68.64	1.229	1498.98	3.00
186.83	24.34	19.46	672.48	2.03	707.20	707.20	0.575	1407.95	62.91	1382.86	62.91	1.261	1558.20	3.79
216.83	24.75	19.45	685.71	0.56	740.60	740.57	0.597	1407.95	62.13	1400.73	62.13	1.270	1584.45	3.91
246.83	24.11	19.15	699.61	-0.67	731.95	731.50	0.583	1407.95	62.69	1416.52	62.69	1.270	1594.24	3.71
276.83	22.75	19.20	667.97	0.52	616.85	616.02	0.498	1407.95	66.28	1402.33	66.28	1.238	1533.67	3.23
306.83	23.10	19.36	643.85	1.69	617.94	617.27	0.509	1407.95	66.05	1389.68	66.05	1.253	1528.60	3.39
336.83	22.96	19.45	631.30	1.63	593.05	592.81	0.493	1407.95	66.92	1391.09	66.92	1.257	1514.14	3.33

TABLE XIX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

CIRC. POSITION	WHEEL SPEED	CIRC. IMPRESSION NO. = 2.20	TOT. PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	RADIUS = 14.420		SLOPE = 1.13	
									STATIC PRESSURE	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.
29.00	1185.21		22.87	611.95	2.78	622.58	621.84	0.527				
59.00	1185.21		22.86	612.41	2.82	623.62	622.87	0.528				
89.00	1185.21		22.89	612.78	2.63	622.07	621.42	0.526				
119.00	1185.21		22.74	612.47	2.67	605.39	604.73	0.512				
149.00	1185.21		21.68	605.57	-0.01	513.16	513.16	0.433				
179.00	1185.21		22.09	625.59	-5.83	563.51	563.60	0.469				
209.00	1185.21		21.62	635.65	-8.18	553.05	547.42	0.457				
239.00	1185.21		22.63	653.34	-8.92	645.30	637.50	0.529				
269.00	1185.21		21.76	634.98	-6.39	556.86	553.40	0.460				
299.00	1185.21		22.23	617.50	-1.69	584.46	584.20	0.491				
329.00	1185.21		22.57	609.82	0.08	605.49	605.49	0.513				
359.00	1185.21		22.75	611.22	1.94	614.48	614.13	0.520				
CIRC. POSITION	WHEEL SPEED		ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.				
29.00	1185.21		30.24	1154.97	61.70	1311.73	1.111	3.84				
59.00	1185.21		30.63	1154.58	61.65	1311.87	1.111	3.84				
89.00	1185.21		28.53	1156.68	61.75	1313.03	1.111	3.84				
119.00	1185.21		28.16	1157.04	62.42	1305.55	1.104	3.74				
149.00	1185.21		-0.09	1185.29	66.99	1291.61	1.090	3.17				
179.00	1185.21		-57.23	1242.44	65.71	1368.06	1.136	3.36				
209.00	1185.21		-78.69	1263.90	66.58	1377.35	1.137	3.18				
239.00	1185.21		-100.03	1285.24	63.62	1434.66	1.176	3.65				
269.00	1185.21		-61.90	1247.19	66.07	1368.45	1.127	3.24				
299.00	1185.21		-17.26	1202.47	64.09	1336.87	1.123	3.54				
329.00	1185.21		0.88	1184.32	62.92	1330.13	1.127	3.73				
359.00	1185.21		20.80	1164.41	62.19	1316.43	1.115	3.79				

TABLE XIX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITH INLET GUIDE VANES AND CASING TREATMENT (Concluded)

PLANE NO. IMMERSION NO.	2.20 5	RADIUS # 11.775		SLOPE # 1.34			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
18.56	22.54	18.64	608.27	0.02	621.73	621.73	0.528
48.56	22.57	18.64	609.61	-0.18	624.85	624.35	0.530
78.56	22.53	18.69	609.98	-0.47	618.01	617.99	0.524
108.56	22.47	18.83	608.58	-0.36	600.40	600.39	0.509
138.56	21.86	18.94	608.21	3.60	543.55	542.47	0.459
168.56	20.08	19.32	603.39	31.75	283.76	241.29	0.237
198.56	19.46	19.15	626.58	*61.36	187.12	89.70	0.153
228.56	19.14	18.94	630.83	†11.87	151.40	148.16	0.123
258.56	23.05	18.70	627.56	-2.22	661.87	661.37	0.555
288.56	22.91	18.73	612.16	-0.75	640.97	640.92	0.544
318.56	22.74	18.66	607.64	0.17	633.45	633.45	0.539
348.56	22.36	18.58	606.97	-0.00	612.95	612.95	0.521
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
18.56	967.81	0.20	967.61	57.28	1150.13	0.977	2.25
48.56	967.81	-1.96	969.77	57.23	1153.37	0.979	2.25
78.56	967.81	-5.07	972.88	57.58	1152.56	0.977	2.23
108.56	967.81	-3.73	971.54	58.28	1142.09	0.968	2.18
138.56	967.81	34.15	933.65	59.84	1079.81	0.911	1.97
168.56	967.81	149.33	818.48	73.57	853.31	0.712	0.87
198.56	967.81	-164.23	1132.04	85.47	1135.58	0.927	0.31
228.56	967.81	-31.14	998.95	81.56	1009.88	0.821	0.50
258.56	967.81	-25.59	993.40	56.35	1193.42	1.001	2.34
288.56	967.81	-8.39	976.20	56.71	1167.79	0.991	2.32
318.56	967.81	1.83	965.98	56.74	1159.15	0.983	2.30
348.56	967.81	-0.05	967.86	57.65	1145.62	0.974	2.21

TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT

PLANE NO. # 0.18		RADIUS # 17.415		SLOPE # 01.29			
IMMERISION NO. # 1							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
0.	13.75	11.48	518.69	-13.79	560.06	543.92	0.515
15.00	13.62	11.46	518.69	-12.94	547.83	533.43	0.502
30.00	13.73	11.44	518.69	-12.32	562.59	549.64	0.517
45.00	13.62	11.41	518.69	-11.70	554.64	543.11	0.509
60.00	13.67	11.37	518.69	-10.77	565.58	555.63	0.520
75.00	13.74	11.35	518.69	-9.83	578.33	565.83	0.532
90.00	13.78	11.18	518.69	-8.82	600.37	593.27	0.554
105.00	13.71	11.04	518.69	-7.81	611.90	606.23	0.565
120.00	13.73	10.73	518.69	-7.44	651.99	646.50	0.605
135.00	11.93	10.41	518.69	-7.07	488.06	484.35	0.446
150.00	11.67	10.40	518.69	-10.24	448.24	441.09	0.408
165.00	11.68	10.39	518.69	-13.42	451.77	439.44	0.411
180.00	11.74	10.37	518.69	-15.39	465.45	449.72	0.425
195.00	11.59	10.34	518.69	-17.36	447.80	427.40	0.408
210.00	11.60	10.42	518.69	-19.84	434.01	408.26	0.395
225.00	11.62	10.49	518.69	-22.32	423.24	391.54	0.385
240.00	13.71	10.70	518.69	-20.03	653.40	613.89	0.606
255.00	13.77	10.90	518.69	-17.74	630.66	600.68	0.584
270.00	13.77	11.09	518.69	-16.91	611.32	584.89	0.565
285.00	13.76	11.28	518.69	-16.08	586.34	563.40	0.540
300.00	13.71	11.31	518.69	-16.09	577.30	554.69	0.531
315.00	13.62	11.34	518.69	-16.10	564.40	542.27	0.519
330.00	13.70	11.41	518.69	-15.37	562.90	545.77	0.517
345.00	13.61	11.49	518.69	-14.64	543.33	525.68	0.498

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH	LOCAL WT. FLOW
0.	1431.37	-133.49	1564.86	70.83	1656.70	1.522	1.61
15.00	1431.37	-122.55	1553.92	71.05	1642.93	1.508	1.58
30.00	1431.37	-120.04	1551.41	70.49	1645.89	1.513	1.63
45.00	1431.37	-112.48	1543.85	70.62	1632.60	1.503	1.60
60.00	1431.37	-105.65	1537.04	70.13	1634.38	1.503	1.63
75.00	1431.37	-98.78	1530.15	69.57	1632.81	1.503	1.67
90.00	1431.37	-92.05	1523.43	69.72	1634.87	1.508	1.73
105.00	1431.37	-85.11	1514.48	68.18	1631.31	1.507	1.75
120.00	1431.37	-84.41	1515.78	66.90	1647.90	1.529	1.83
135.00	1431.37	-60.09	1491.46	72.01	1568.13	1.432	1.29
150.00	1431.37	-79.71	1511.09	73.73	1574.15	1.433	1.16
165.00	1431.37	-104.82	1535.19	74.04	1597.81	1.455	1.16
180.00	1431.37	-123.78	1555.15	73.87	1618.87	1.476	1.19
195.00	1431.37	-133.63	1565.00	74.73	1622.31	1.477	1.12
210.00	1431.37	-147.29	1578.66	75.50	1630.60	1.483	1.08
225.00	1431.37	-160.70	1592.07	76.18	1633.51	1.480	1.04
240.00	1431.37	-223.76	1655.13	69.65	1765.31	1.688	1.73
255.00	1431.37	-192.14	1623.51	69.70	1731.07	1.662	1.72
270.00	1431.37	-177.61	1609.18	70.03	1712.18	1.581	1.69
285.00	1431.37	-162.41	1593.78	70.53	1690.43	1.557	1.65
300.00	1431.37	-159.99	1591.36	70.78	1689.26	1.551	1.63
315.00	1431.37	-156.49	1587.86	71.14	1677.90	1.542	1.59
330.00	1431.37	-149.19	1580.56	71.05	1671.16	1.536	1.60
345.00	1431.37	-137.33	1568.70	71.47	1654.44	1.518	1.58

TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. [MERSON NO. # 0.18 3	CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	SLOPE #	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
0.	0.	13.74	11.06	518.69	-12.92	-1.08	611.91	596.40	0.565
15.00	15.00	13.74	11.07	518.69	-12.00		611.17	597.81	0.564
30.00	30.00	13.74	11.03	518.69	-10.99		615.47	604.38	0.569
45.00	45.00	13.73	11.00	518.69	-9.78		619.03	610.02	0.572
60.00	60.00	13.73	10.94	518.69	-8.89		627.01	620.01	0.581
75.00	75.00	13.72	10.88	518.69	-8.00		632.06	625.91	0.585
90.00	90.00	13.72	10.72	518.69	-6.52		638.76	664.42	0.622
105.00	105.00	13.73	10.57	518.69	-5.05		649.98	647.38	0.623
120.00	120.00	13.69	10.49	518.69	-3.43		675.88	672.85	0.629
135.00	135.00	13.69	10.42	518.69	-2.81		410.66	408.55	0.373
150.00	150.00	11.41	10.32	518.69	-2.39		420.30	414.66	0.382
165.00	165.00	11.40	10.23	518.69	-1.97		435.76	424.64	0.396
180.00	180.00	11.45	10.20	518.69	-1.67		449.22	431.67	0.409
195.00	195.00	11.40	10.17	518.69	-1.16		446.42	421.69	0.406
210.00	210.00	11.41	10.27	518.69	-2.23		429.67	395.73	0.391
225.00	225.00	11.36	10.36	518.69	-2.69		402.76	359.85	0.365
240.00	240.00	11.70	10.40	518.69	-2.56		687.63	635.00	0.640
255.00	255.00	13.72	10.44	518.69	-1.83		684.75	649.51	0.638
270.00	270.00	13.82	10.62	518.69	-1.51		671.62	640.49	0.624
285.00	285.00	13.74	10.81	518.69	-1.60		642.52	615.76	0.595
300.00	300.00	13.73	10.89	518.69	-1.52		631.54	607.91	0.585
315.00	315.00	13.72	10.97	518.69	-1.45		621.70	600.93	0.575
330.00	330.00	13.73	11.02	518.69	-1.35		616.88	597.64	0.570
345.00	345.00	13.71	11.06	518.69	-1.35		609.27	591.56	0.563

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.
0.	1093.15	-136.87	1230.02	64.13	1366.98	1.263	1.190
15.00	1093.15	-127.10	1230.25	63.90	1358.92	1.255	1.190
30.00	1093.15	-116.32	1230.47	63.45	1352.07	1.249	1.192
45.00	1093.15	-105.20	1198.36	63.02	1344.69	1.243	1.193
60.00	1093.15	-97.61	1190.17	62.48	1341.98	1.242	1.196
75.00	1093.15	-67.58	1181.13	62.08	1336.72	1.237	1.197
90.00	1093.15	-75.98	1169.14	60.39	1344.74	1.250	2.008
105.00	1071.15	-58.94	1152.09	59.92	1331.43	1.238	2.008
120.00	1093.15	-63.55	1157.10	59.82	1338.51	1.245	2.006
135.00	1093.15	-41.58	1134.73	70.20	1206.04	1.095	1.118
150.00	1093.15	-68.59	1161.74	70.36	1233.53	1.120	1.119
165.00	1093.15	-97.82	1190.90	70.38	1264.41	1.150	1.121
180.00	1093.15	-124.33	1217.48	70.48	1291.74	1.176	1.123
195.00	1093.15	-146.53	1239.68	71.21	1309.43	1.192	1.120
210.00	1093.15	-167.37	1260.52	72.57	1321.18	1.201	1.113
225.00	1093.15	-180.91	1274.06	74.23	1323.90	1.201	1.103
240.00	1093.15	-263.63	1356.98	64.92	1498.20	1.396	1.193
255.00	1093.15	-216.51	1309.15	63.62	1461.92	1.361	1.198
270.00	1093.15	-202.12	1295.27	63.69	1444.97	1.343	1.198
285.00	1093.15	-183.51	1276.66	64.25	1417.40	1.313	1.193
300.00	1093.15	-171.13	1264.28	64.32	1402.84	1.298	1.191
315.00	1093.15	-159.32	1252.47	64.37	1389.18	1.284	1.190
330.00	1093.15	-152.67	1246.02	64.38	1381.94	1.277	1.190
345.00	1093.15	-145.62	1238.97	64.48	1372.95	1.268	1.188

TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. = 0.18		RADIUS = 8.580		SLOPE = 0.33			
IMMERISION NO. = 5							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS. FLOW ANGLE	ABS. VELOCITY	AXIAL VELOCITY	ABS. MACH NO.
0.	13.70	11.05	518.69	-12.51	609.14	594.68	0.562
15.00	13.78	11.07	518.69	-11.09	615.12	603.64	0.568
30.00	13.76	11.02	518.69	-9.46	618.73	610.32	0.572
45.00	13.74	10.98	518.69	-7.83	622.77	616.97	0.576
60.00	13.71	10.92	518.69	-5.96	626.07	622.69	0.579
75.00	13.73	10.86	518.69	-4.08	635.31	633.69	0.588
90.00	13.82	10.69	518.69	-1.97	664.12	663.72	0.617
105.00	13.77	10.52	518.69	0.14	678.66	678.65	0.631
120.00	13.69	10.42	518.69	2.31	683.35	682.53	0.636
135.00	12.12	10.32	518.69	5.48	529.11	526.70	0.485
150.00	11.55	10.28	518.69	-2.86	451.72	451.15	0.411
165.00	11.50	10.24	518.69	-4.49	449.83	441.25	0.409
180.00	11.55	10.24	518.69	-11.21	459.37	443.89	0.418
195.00	11.53	10.23	518.69	-18.63	456.62	432.70	0.416
210.00	11.57	10.29	518.69	-24.21	453.12	413.28	0.413
225.00	11.59	10.35	518.69	-29.79	445.23	386.41	0.405
240.00	13.75	10.39	518.69	-26.29	693.01	621.33	0.646
255.00	13.69	10.43	518.69	-22.79	683.33	630.16	0.636
270.00	13.97	10.58	518.69	-20.84	690.11	644.97	0.643
285.00	13.92	10.73	518.69	-18.98	667.64	631.71	0.620
300.00	13.80	10.64	518.69	-17.72	644.35	613.79	0.597
315.00	13.81	10.95	518.69	-16.55	631.65	605.48	0.585
330.00	13.81	11.00	518.69	-15.24	626.39	604.35	0.579
345.00	13.74	11.04	518.69	-13.93	614.74	596.64	0.568

CIRC. POSITION	WHEEL SPEED	ABS. TANG. VELOCITY	REL. TANG. VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
0.	705.21	-131.96	837.17	54.61	1026.89	0.948	1.16
15.00	705.21	-118.30	823.50	53.76	1023.05	0.943	1.18
30.00	705.21	-101.68	806.88	52.90	1013.71	0.935	1.19
45.00	705.21	-84.83	790.04	52.01	1002.40	0.927	1.20
60.00	705.21	-64.97	770.18	51.04	990.41	0.916	1.21
75.00	705.21	-45.26	750.46	49.82	982.22	0.909	1.22
90.00	705.21	-22.64	728.05	47.55	985.18	0.915	1.22
105.00	705.21	1.69	703.51	46.03	977.50	0.910	1.28
120.00	705.21	33.52	671.68	44.54	957.60	0.892	1.28
135.00	705.21	50.54	654.67	51.18	840.24	0.770	0.95
150.00	705.21	-22.57	727.77	58.20	856.27	0.780	0.80
165.00	705.21	-87.43	792.64	60.90	907.16	0.826	0.78
180.00	705.21	-118.25	823.46	61.67	935.48	0.852	0.78
195.00	705.21	-145.64	851.04	63.05	954.73	0.870	0.76
210.00	705.21	-185.79	926.39	65.12	982.18	0.894	0.73
225.00	705.21	-221.18	968.39	67.36	1003.75	0.913	0.69
240.00	705.21	-306.94	1012.14	68.46	1187.64	1.107	1.16
255.00	705.21	-264.79	970.00	56.99	1156.72	1.077	1.18
270.00	705.21	-245.49	950.69	55.85	1146.83	1.070	1.23
285.00	705.21	-216.07	921.30	55.56	1117.05	1.038	1.22
300.00	705.21	-196.09	901.30	55.74	1090.45	1.011	1.19
315.00	705.21	-179.95	885.15	55.63	1072.43	0.993	1.18
330.00	705.21	-164.69	869.90	55.21	1059.22	0.980	1.18
345.00	705.21	-148.04	853.25	55.04	1043.16	0.962	1.17

TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.61	10.72	518.69	0.62	641.00	640.97	0.594
57.98	13.58	10.68	518.69	0.62	643.25	43.21	0.596
87.98	13.56	10.71	518.69	0.44	636.83	636.81	0.590
117.98	13.56	10.62	518.69	2.58	647.15	647.15	0.601
147.98	11.54	9.47	518.69	6.51	584.79	581.02	0.539
177.98	11.60	8.94	518.69	2.26	667.69	667.17	0.620
207.98	11.52	9.16	518.69	±1.27	628.22	628.06	0.581
237.98	13.56	10.26	518.69	±2.88	690.58	689.71	0.643
267.98	13.65	10.67	518.69	-0.62	650.49	650.45	0.603
297.98	13.60	10.59	518.69	±0.37	655.60	655.58	0.608
327.98	13.53	10.71	518.69	0.74	634.10	634.05	0.587
357.98	13.64	10.54	518.69	1.21	665.54	665.19	0.618

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1431.78	6.88	1424.90	65.78	1562.43	1.448	3.25
57.98	1431.78	6.99	1424.79	65.70	1563.25	1.449	3.25
87.98	1431.78	4.85	1426.94	65.95	1562.58	1.447	3.23
117.98	1431.78	29.13	1402.66	65.23	1544.75	1.432	3.26
147.98	1431.78	66.50	1365.48	66.95	1483.95	1.367	2.98
177.98	1431.78	26.92	1405.46	66.61	1525.78	1.446	2.84
207.98	1431.78	-13.90	1445.68	66.52	1576.22	1.458	2.72
237.98	1431.78	-14.69	1466.47	64.81	1620.56	1.510	3.39
267.98	1431.78	-7.82	1438.80	65.67	1579.00	1.465	3.29
297.98	1431.78	-4.22	1436.00	65.46	1578.57	1.465	3.30
327.98	1431.78	8.18	1423.60	65.99	1558.42	1.443	3.21
357.98	1431.78	14.00	1417.78	64.87	1566.07	1.455	3.34

TABLE XX - TASK 11 STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	A. AL VELOCITY	ABS MACH NO.	SLOPE #	
								13.797	4.85
27.98	13.70	10.26	518.69	0.41	701.47	701.45	0.655		
57.98	13.71	10.15	518.69	1.42	713.37	713.15	0.667		
87.98	13.76	10.20	518.69	1.15	712.63	712.49	0.666		
117.98	13.70	10.13	518.69	4.22	715.53	713.59	0.669		
147.98	11.38	9.01	518.69	7.38	631.89	628.66	0.585		
177.98	11.40	8.65	518.69	1.84	685.64	685.29	0.639		
207.98	11.39	8.55	518.69	1.17	697.74	697.60	0.651		
237.98	13.69	9.82	518.69	4.02	749.30	747.46	0.704		
267.98	13.78	10.12	518.69	0.93	723.19	723.09	0.677		
297.98	13.72	10.14	518.69	0.34	715.46	715.45	0.669		
327.98	13.70	10.14	518.69	0.30	714.19	714.18	0.668		
357.98	13.77	10.19	518.69	0.91	713.59	713.50	0.667		
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW		
27.98	1134.00	5.03	1128.97	58.15	1329.14	1.240	3.70		
57.98	1134.00	17.62	1116.39	57.43	1324.73	1.238	3.74		
87.98	1134.00	14.34	1119.66	57.53	1327.13	1.240	3.75		
117.98	1134.00	52.63	1081.37	56.58	1295.60	1.211	3.74		
147.98	1134.00	81.16	1052.85	59.24	1225.23	1.134	2.86		
177.98	1134.00	21.98	1112.02	58.36	1306.22	1.217	3.04		
207.98	1134.00	-14.28	1148.28	58.72	1343.58	1.253	3.07		
237.98	1134.00	152.56	1186.56	57.79	1402.36	1.317	3.82		
267.98	1134.00	-11.79	1145.79	57.74	1354.88	1.268	3.79		
297.98	1134.00	4.27	1129.73	57.65	1337.22	1.250	3.75		
327.98	1134.00	3.71	1130.29	57.71	1337.01	1.250	3.74		
357.98	1134.00	11.31	1122.69	57.56	1330.23	1.243	3.76		

**TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)**

CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.74	10.20	518.69	±1.57	686.87	686.61	0.642
57.98	13.77	10.22	518.69	±1.56	687.08	686.82	0.642
87.98	13.79	10.23	518.69	±0.97	687.66	687.57	0.643
117.98	13.73	10.17	518.69	5.67	689.69	686.31	0.645
147.98	11.64	9.24	518.69	18.93	610.21	577.20	0.565
177.98	11.49	8.61	518.69	2.13	677.50	677.03	0.632
207.98	11.62	8.62	518.69	±8.02	688.76	682.02	0.644
237.98	13.65	9.87	518.69	±8.18	716.02	708.73	0.672
267.98	13.70	10.15	518.69	±3.66	690.35	688.95	0.645
297.98	13.74	10.18	518.69	±2.38	689.59	689.00	0.645
327.98	13.74	10.19	518.69	±0.51	688.79	688.76	0.644
357.98	13.68	10.20	518.69	±0.50	683.23	683.21	0.638

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	814.52	-18.83	833.35	50.51	1079.78	1.009	2.37
57.98	814.52	-18.70	833.23	50.50	1079.81	1.009	2.37
87.98	814.52	-11.61	826.13	50.23	1074.82	1.004	2.38
117.98	814.52	68.15	746.37	47.40	1013.95	0.948	2.36
147.98	814.52	197.98	616.54	46.89	844.56	0.782	1.77
177.98	814.52	25.13	789.39	49.38	1039.95	0.970	1.96
207.98	814.52	-96.12	910.64	53.17	1137.72	1.063	1.99
237.98	814.52	-101.85	916.37	52.28	1158.47	1.086	2.38
267.98	814.52	-44.07	858.59	51.26	1100.83	1.029	2.36
297.98	814.52	-28.65	843.17	50.75	1086.88	1.018	2.37
327.98	814.52	-6.17	820.69	49.99	1071.41	1.001	2.37
357.98	814.52	-6.00	820.52	50.22	1067.72	0.997	2.35

TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL TANG VELOCITY	REL. FLOW ANGLE	ABS FLOW ANGLE	ABS VELOCITY	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW	SLOPE = -0.83	
										RADIUS = 17.081	PLANE NO. = 1.51
15.00	1463.92	292.25	1111.67	57.98	22.80	754.22	1311.20	1.155	3.40	695.29	0.665
45.00	1463.92	296.14	1107.78	58.12	23.26	749.89	1304.54	1.147	3.36	688.94	0.659
75.00	1463.92	295.72	1108.20	57.75	22.92	759.19	1310.35	1.154	3.40	699.23	0.668
105.00	1463.92	309.38	1094.53	58.09	24.42	748.38	1289.32	1.136	3.29	681.43	0.659
135.00	1463.92	356.34	1047.38	58.95	29.17	730.98	1226.70	1.087	2.94	638.25	0.648
165.00	1463.92	406.54	997.38	56.41	31.54	777.21	1197.30	1.032	3.00	662.40	0.670
195.00	1463.92	378.05	1025.87	57.12	28.68	763.41	1221.59	1.057	3.01	663.23	0.660
225.00	1463.92	316.44	1087.48	56.82	25.68	783.16	1302.23	1.115	3.25	685.64	0.653
255.00	1463.92	279.70	1124.22	58.47	22.30	744.20	1316.89	1.137	3.38	688.43	0.656
285.00	1463.92	282.30	1121.62	58.46	22.11	746.63	1316.04	1.160	3.38	691.75	0.657
315.00	1463.92	280.96	1122.96	58.37	22.11	746.63	1318.92	1.160	3.36	691.75	0.657
345.00	1463.92	287.62	1116.30	58.47	22.78	742.88	1309.69	1.152	3.34	684.95	0.654

TABLE XX - TASK 11 STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA, 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO.	1.51 3	RADIUS = 14.056		SLOPE = 3.14			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	20.11	14.09	583.88	28.68	822.62	721.72	0.730
45.00	20.10	14.03	583.31	28.71	826.29	724.71	0.734
75.00	20.05	14.02	583.35	28.65	824.10	723.20	0.732
105.00	19.94	13.69	581.80	29.03	837.58	732.38	0.747
135.00	18.33	12.75	570.11	32.68	820.52	690.63	0.738
165.00	17.64	12.83	592.34	38.82	786.20	612.54	0.689
195.00	18.17	12.84	599.39	33.80	824.22	684.94	0.721
225.00	20.51	14.34	614.60	31.41	851.89	727.07	0.738
255.00	20.18	14.61	589.68	29.81	790.11	685.56	0.695
285.00	19.82	13.95	582.15	27.54	816.09	723.61	0.725
315.00	19.92	14.06	583.26	27.98	814.04	718.87	0.722
345.00	19.98	13.97	583.37	28.07	824.61	727.61	0.733

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL TANG VELOCITY	REL, FLOW ANGLE	REL, FLOW VELOCITY	REL, MACH NO.	LOCAL WT. FLOW
15.00	1155.29	394.74	760.55	46.50	1048.48	0.931	4.02
45.00	1155.29	396.92	758.37	46.30	1048.97	0.932	4.03
75.00	1155.29	395.12	760.17	46.43	1049.23	0.932	4.02
105.00	1155.29	406.40	748.69	45.64	1047.48	0.934	4.00
135.00	1155.29	443.05	712.24	45.88	992.09	0.892	3.58
165.00	1155.29	492.85	662.44	47.24	902.24	0.791	3.03
195.00	1155.29	458.46	696.83	45.49	977.10	0.855	3.38
225.00	1155.29	443.93	711.36	44.37	1017.19	0.881	3.93
255.00	1155.29	392.77	762.52	48.04	1025.39	0.902	3.89
285.00	1155.29	377.35	777.84	47.07	1062.45	0.944	4.00
315.00	1155.29	381.96	773.33	47.09	1055.85	0.937	4.00
345.00	1155.29	368.03	767.26	46.52	1057.40	0.940	4.03

TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. = 1.51
 IMMERSION NO. = 5
 RADIUS = 11.030
 SLOPE = 11.17

CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	21.98	14.73	598.29	38.42	871.74	683.02	0.770
45.00	22.02	14.61	596.94	38.70	860.53	687.15	0.779
75.00	21.96	14.68	597.50	38.40	872.97	684.11	0.771
105.00	21.95	14.31	594.27	38.48	895.70	701.21	0.797
135.00	20.07	13.22	578.52	39.55	874.48	674.23	0.787
165.00	18.13	12.46	585.08	42.83	836.09	613.14	0.744
195.00	19.37	12.93	600.30	40.61	877.64	666.29	0.774
225.00	21.67	14.56	605.05	33.97	871.98	723.17	0.765
255.00	22.51	15.05	606.28	38.56	879.23	687.55	0.771
285.00	22.28	14.71	600.34	36.89	887.92	710.12	0.784
315.00	21.92	14.68	587.47	37.87	871.55	688.04	0.770
345.00	21.89	14.55	603.36	38.33	883.38	692.97	0.778

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	906.58	541.68	364.89	28.11	774.38	0.684	2.34
45.00	906.58	550.61	355.97	27.39	773.88	0.685	2.35
75.00	906.58	542.28	364.30	28.04	775.06	0.685	2.34
105.00	906.58	557.31	349.27	26.48	783.38	0.697	2.37
135.00	906.58	556.88	349.69	27.41	759.52	0.684	2.16
165.00	906.58	568.41	338.16	28.88	700.21	0.623	1.81
195.00	906.58	571.24	335.34	26.72	745.92	0.658	2.00
225.00	906.58	487.21	419.36	30.11	835.97	0.734	2.42
255.00	906.58	548.00	358.57	27.94	775.44	0.680	2.38
285.00	906.58	533.04	373.54	27.53	802.37	0.709	2.43
315.00	906.58	534.99	371.59	28.37	781.97	0.691	2.36
345.00	906.58	547.86	358.71	27.37	780.31	0.687	2.33

**TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)**

PLANE NO., IMMERSION NO. =	2.20 1	RADIUS = 17.130		SLOPE = 0.24			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS. FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
6.83	18.49	14.22	585.24	0.59	707.42	707.38	0.619
36.83	18.39	14.34	586.12	0.72	694.64	694.59	0.606
66.83	18.45	14.44	587.47	0.93	692.27	692.18	0.603
96.83	18.54	14.54	586.48	1.82	687.76	687.41	0.600
126.83	17.92	14.80	581.19	3.53	609.32	608.16	0.530
156.83	17.12	14.77	595.61	0.67	544.14	544.10	0.464
186.83	17.62	14.49	609.82	1.39	631.21	631.02	0.536
216.83	18.03	14.50	616.05	0.48	672.02	671.99	0.570
246.83	18.59	14.35	592.76	0.52	719.68	719.65	0.626
276.83	18.34	14.17	587.62	0.28	708.20	708.19	0.618
306.83	18.38	14.17	587.41	0.39	711.15	711.13	0.621
336.83	18.45	14.15	587.36	0.59	718.10	718.06	0.628
CIRC. POSITION	WHEEL SPEED	ABS. TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
6.83	1407.95	-7.27	1415.21	63.44	1582.16	1.384	3.21
36.83	1407.95	-8.71	1416.66	63.88	1577.77	1.377	3.17
66.83	1407.95	-11.26	1419.22	64.00	1579.02	1.376	3.17
96.83	1407.95	-21.89	1429.83	64.32	1586.49	1.383	3.17
126.83	1407.95	-37.54	1445.49	67.16	1568.22	1.363	2.84
156.83	1407.95	-6.40	1414.34	68.26	1515.39	1.293	2.44
186.83	1407.95	15.36	1392.59	65.62	1528.89	1.298	2.75
216.83	1407.95	5.43	1402.32	64.40	1555.01	1.318	2.93
246.83	1407.95	6.47	1401.48	62.82	1575.45	1.370	3.26
276.83	1407.95	3.46	1404.48	63.24	1572.93	1.373	3.19
306.83	1407.95	-4.90	1412.85	63.28	1581.72	1.381	3.21
336.83	1407.95	-7.44	1415.39	63.10	1587.11	1.387	3.24

TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO. = 2.20	RADIUS = 14.420	SLOPE = 1.13												
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	LOCAL WT. FLOW	
29.00	18.65	14.11	586.04	0.62	734.94	734.90	0.644							
52.00	18.83	14.21	586.74	0.44	738.75	738.73	0.648							
89.00	19.84	14.27	587.10	0.19	733.91	733.90	0.643							
119.00	18.77	14.48	583.84	0.49	708.17	708.15	0.620							
149.00	17.62	14.46	576.52	1.21	616.79	616.65	0.539							
178.00	17.49	14.09	598.46	2.09	656.59	656.16	0.565							
209.00	18.06	14.00	605.78	2.79	714.50	713.66	0.614							
239.00	17.60	14.04	612.93	1.38	818.34	818.10	0.707							
269.00	18.97	13.99	594.62	0.74	772.27	772.20	0.675							
299.00	18.59	13.96	587.93	0.74	745.39	745.33	0.653							
328.00	13.73	13.98	587.57	0.68	752.90	752.84	0.660							
359.00	13.73	14.04	587.78	0.63	750.18	750.13	0.658							
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW							
29.00	1185.21	7.93	1177.28	58.03	1387.82	1.216	3.62							
52.00	1185.21	5.64	1179.57	57.94	1391.80	1.220	3.67							
89.00	1185.21	2.40	1182.81	58.18	1391.99	1.219	3.66							
119.00	1185.21	6.04	1179.17	59.01	1375.47	1.205	3.58							
149.00	1185.21	13.04	1172.16	62.25	1324.47	1.157	3.10							
179.00	1185.21	23.93	1161.28	60.53	1333.83	1.147	3.11							
209.00	1185.21	34.73	1150.48	58.19	1353.85	1.163	3.36							
239.00	1185.21	19.74	1165.47	54.93	1423.94	1.230	3.90							
269.00	1185.21	10.04	1175.17	56.89	1400.17	1.228	3.75							
299.00	1185.21	9.60	1175.61	57.63	1391.96	1.220	3.64							
329.00	1185.21	8.87	1176.34	57.68	1396.62	1.225	3.69							
359.00	1185.21	8.22	1176.98	57.49	1395.71	1.224	3.68							

**TABLE XX - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITH INLET GUIDE VANES AND CASING TREATMENT (Concluded)**

CIRC. POSITION	TOT. PRESSURE	TOT. TEMP.	ABS. FLOW ANGLE	ABS. VELOCITY	AXIAL VELOCITY	ABS. MACH NO.	PLATE HO, IMMERISION HO. = 2.20	
							RADIUS = 11.775	SLOPE = 1.14
48.56	17.67	601.68	53.21	820.64	819.36	0.716		
48.56	18.91	599.97	52.33	821.45	820.77	0.718		
72.56	20.41	600.64	52.00	834.24	833.74	0.730		
102.56	22.65	597.68	50.43	815.07	815.04	0.714		
132.56	20.47	591.72	50.27	777.30	777.29	0.681		
162.56	17.47	585.13	3.94	647.65	646.12	0.563		
192.56	18.15	606.61	2.30	741.19	740.60	0.638		
222.56	18.40	615.11	1.30	788.35	788.15	0.677		
252.56	19.65	611.90	2.32	847.73	847.03	0.736		
282.56	19.59	605.78	2.96	840.96	839.73	0.733		
312.56	18.42	602.04	3.49	821.10	819.58	0.717		
342.56	19.66	600.80	3.48	845.20	843.64	0.741		
CIRC. POSITION	WHEEL SPEED	ABS. TANG. VELOCITY	REL. TANG. VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW	
15.56	967.81	-45.89	1013.70	51.05	1303.43	1.138	2.35	
48.56	967.81	-33.41	1001.22	50.66	1294.64	1.132	2.38	
78.56	967.81	-29.09	996.90	50.09	1299.58	1.138	2.46	
102.56	967.81	-6.12	973.93	50.08	1269.97	1.112	2.47	
132.56	967.81	3.66	964.15	51.12	1238.45	1.085	2.39	
162.56	967.81	44.54	923.27	55.02	1126.90	0.960	1.85	
192.56	967.81	29.80	938.01	51.71	1195.14	1.029	2.04	
222.56	967.81	17.86	949.93	50.32	1234.32	1.061	2.12	
252.56	967.81	-34.27	1002.08	49.79	1312.11	1.139	2.35	
282.56	967.81	-43.39	1011.28	50.29	1314.41	1.146	2.35	
312.56	967.81	-49.93	1017.74	51.16	1306.72	1.141	2.32	
342.56	967.81	-51.35	1019.16	50.38	1323.03	1.160	2.38	

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO.	IMMERSION NO.	α	RADIUS	SLOPE	ABS FLOW ANGLE	TOT. TEMP.	STATIC PRESSURE	REL. TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	AXIAL VELOCITY	ABS VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
			13.300	-1.08											
CIRC. POSITION		TOT. PRESSURE			ABS FLOW ANGLE	TOT. TEMP.	STATIC PRESSURE	REL. TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	AXIAL VELOCITY	ABS VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
0.		14.36			-0.73	518.69	13.06	770.43	62.07	62.07	872.02	408.51	408.51	0.791	1.48
15.00		14.35			-0.51	518.69	13.06	768.55	62.18	62.18	869.51	405.67	405.67	0.789	1.47
30.00		14.35			0.26	518.69	13.04	763.86	61.71	61.71	866.91	410.86	410.86	0.787	1.49
45.00		14.36			1.03	510.69	13.01	757.73	61.20	61.20	864.68	416.62	416.62	0.785	1.51
60.00		14.36			1.07	518.69	12.97	757.34	60.85	60.85	867.15	422.36	422.36	0.780	1.52
75.00		14.37			1.11	518.69	12.93	755.91	60.42	60.42	870.31	429.64	429.64	0.791	1.55
90.00		14.41			2.19	518.69	12.87	748.17	59.27	59.27	870.35	444.70	444.70	0.792	1.60
105.00		14.37			3.28	518.69	12.81	739.55	58.83	58.83	864.33	448.10	448.10	0.778	1.58
120.00		14.33			4.17	518.69	12.81	740.82	60.47	60.47	870.85	441.23	441.23	0.778	1.58
135.00		13.59			5.07	518.69	12.82	752.48	60.62	60.62	872.69	277.34	277.34	0.792	1.60
150.00		13.35			2.61	518.69	12.77	772.00	69.33	69.33	825.11	279.50	279.50	0.778	1.58
165.00		13.33			0.16	518.69	12.73	733.01	58.95	58.95	855.56	286.28	286.28	0.778	1.58
180.00		13.35			-1.34	518.69	12.73	740.82	60.47	60.47	870.85	291.23	291.23	0.778	1.58
195.00		13.57			-2.83	518.69	12.72	752.48	60.62	60.62	872.69	294.90	294.90	0.792	1.60
210.00		13.59			-3.09	518.69	12.78	748.17	59.27	59.27	870.35	299.26	299.26	0.792	1.60
225.00		13.35			-5.14	518.69	12.83	733.01	58.95	58.95	864.33	263.06	263.06	0.778	1.58
240.00		14.34			-4.78	518.69	12.87	740.82	60.47	60.47	870.85	434.92	434.92	0.792	1.60
255.00		14.35			-4.42	518.69	12.90	752.48	60.62	60.62	872.69	430.64	430.64	0.792	1.60
270.00		14.39			-3.77	518.69	12.95	748.17	59.27	59.27	870.35	428.50	428.50	0.790	1.59
285.00		14.39			-3.12	518.69	13.00	733.01	58.95	58.95	864.33	416.24	416.24	0.778	1.58
300.00		14.36			-2.58	518.69	13.02	740.82	60.47	60.47	870.85	413.85	413.85	0.778	1.58
315.00		14.37			-1.89	518.69	13.04	752.48	60.62	60.62	872.69	412.89	412.89	0.778	1.58
330.00		14.36			-1.42	518.69	13.05	748.17	59.27	59.27	870.35	410.16	410.16	0.772	1.57
345.00		14.35			-0.95	518.69	13.06	740.82	60.47	60.47	870.85	407.19	407.19	0.770	1.57
CIRC. POSITION		WHEEL SPEED			REL. FLOW ANGLE	REL. TANG VELOCITY	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	AXIAL VELOCITY	ABS VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
0.		765.21			-5.23	770.43	-3.23	770.43	62.07	62.07	872.02	408.51	408.51	0.791	1.48
15.00		765.21			-3.84	768.55	-3.84	768.55	62.18	62.18	869.51	405.67	405.67	0.789	1.47
30.00		765.21			1.84	763.86	1.84	763.86	61.71	61.71	866.91	410.86	410.86	0.787	1.49
45.00		765.21			7.47	757.73	7.47	757.73	61.20	61.20	864.68	416.62	416.62	0.785	1.51
60.00		765.21			7.87	757.34	7.87	757.34	60.85	60.85	867.15	422.36	422.36	0.780	1.52
75.00		765.21			8.27	755.91	8.27	755.91	60.42	60.42	870.31	429.64	429.64	0.791	1.55
90.00		765.21			17.04	748.17	17.04	748.17	59.27	59.27	870.35	444.70	444.70	0.792	1.60
105.00		765.21			25.65	739.55	25.65	739.55	58.83	58.83	864.33	448.10	448.10	0.778	1.58
120.00		765.21			32.20	740.82	32.20	740.82	60.47	60.47	870.85	441.23	441.23	0.778	1.58
135.00		765.21			24.59	752.48	24.59	752.48	60.62	60.62	872.69	277.34	277.34	0.792	1.60
150.00		765.21			12.75	764.42	12.75	764.42	69.47	69.47	816.27	279.50	279.50	0.778	1.58
165.00		765.21			0.78	772.00	0.78	772.00	69.33	69.33	825.11	286.28	286.28	0.778	1.58
180.00		765.21			-6.80	740.82	-6.80	740.82	60.47	60.47	870.85	413.85	413.85	0.778	1.58
195.00		765.21			-14.58	752.48	-14.58	752.48	60.62	60.62	872.69	412.89	412.89	0.778	1.58
210.00		765.21			-20.04	748.17	-20.04	748.17	59.27	59.27	870.35	410.16	410.16	0.772	1.57
225.00		765.21			-23.69	739.55	-23.69	739.55	58.83	58.83	864.33	407.19	407.19	0.770	1.57
240.00		765.21			-36.39	740.82	-36.39	740.82	60.47	60.47	870.85	405.67	405.67	0.789	1.47
255.00		765.21			-33.29	752.48	-33.29	752.48	60.62	60.62	872.69	408.51	408.51	0.791	1.48
270.00		765.21			-28.22	764.42	-28.22	764.42	69.47	69.47	816.27	410.86	410.86	0.785	1.51
285.00		765.21			-22.63	772.00	-22.63	772.00	69.33	69.33	825.11	416.62	416.62	0.785	1.51
300.00		765.21			-18.08	740.82	-18.08	740.82	60.47	60.47	870.85	422.36	422.36	0.784	1.52
315.00		765.21			-13.60	752.48	-13.60	752.48	60.62	60.62	872.69	429.64	429.64	0.791	1.55
330.00		765.21			-10.16	764.42	-10.16	764.42	69.47	69.47	816.27	444.70	444.70	0.792	1.60
345.00		765.21			-6.77	740.82	-6.77	740.82	60.47	60.47	870.85	441.23	441.23	0.778	1.58

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA: 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMPRESSION NO. #	W	RADIUS #	SLOPE #	ABS FLOW ANGLE	ABS VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
	0.95	17.420	1.91				
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	14.28	12.93	518.69	-6.20	418.62	1.024	2.45
57.98	14.27	12.94	518.69	-7.06	430.07	1.035	2.50
87.98	14.25	12.93	518.69	-5.45	413.51	1.017	2.42
117.98	14.23	12.91	518.69	-3.53	413.54	1.006	2.42
147.98	13.38	12.41	518.69	2.12	364.48	0.954	2.04
177.98	13.37	12.38	518.69	-5.30	368.05	0.995	2.05
207.98	13.36	12.53	518.69	-11.04	337.87	1.010	1.87
237.98	14.17	13.00	518.69	-10.44	385.63	1.033	2.26
267.98	14.26	12.97	518.69	-6.50	407.62	1.020	2.39
297.98	14.26	12.96	518.69	-4.49	409.97	1.010	2.41
327.98	14.31	12.95	518.69	-1.03	419.00	0.993	2.47
357.98	14.28	12.95	518.69	-6.87	414.61	1.026	2.42
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1002.25	-45.25	1047.49	68.33	1127.14	1.024	2.45
57.98	1002.25	-52.87	1055.11	67.98	1138.17	1.035	2.50
87.98	1002.25	-39.27	1041.52	68.43	1119.92	1.017	2.42
117.98	1002.25	-25.50	1027.75	68.12	1107.53	1.006	2.42
147.98	1002.25	13.51	988.73	69.70	1053.69	0.954	2.04
177.98	1002.25	-34.01	1035.26	70.52	1099.15	0.995	2.05
207.98	1002.25	-64.71	1066.96	72.73	1117.30	1.010	1.87
237.98	1002.25	-70.62	1072.86	70.35	1139.23	1.033	2.26
267.98	1002.25	-46.16	1049.40	68.88	1123.91	1.020	2.39
297.98	1002.25	-32.12	1034.36	68.44	1112.18	1.010	2.41
327.98	1002.25	-7.51	1003.76	67.47	1093.21	0.993	2.47
357.98	1002.25	-49.62	1051.87	68.63	1129.54	1.026	2.42

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA: 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERISION NO. #	0.95 3	RADIUS #		SLOPE #		4.85	
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	14.35	12.28	518.69	+0.91	519.09	519.02	0.475
57.98	14.36	12.28	518.69	+0.43	519.85	519.84	0.476
87.98	14.36	12.34	518.69	0.04	511.67	511.67	0.468
117.98	14.34	12.29	518.69	1.46	516.18	516.01	0.472
147.98	13.35	11.90	518.69	6.27	446.88	444.21	0.407
177.98	13.35	11.96	518.69	+0.84	437.21	437.16	0.398
207.98	13.36	12.02	518.69	+6.02	429.30	427.01	0.390
237.98	14.34	12.51	518.69	+5.33	487.22	485.12	0.445
267.98	14.37	12.37	518.69	-1.04	509.68	509.59	0.466
297.98	14.36	12.35	518.69	+0.32	510.75	510.74	0.467
327.98	14.34	12.31	518.69	-1.09	513.84	513.74	0.470
357.98	14.36	12.30	518.69	+0.70	517.88	517.84	0.474
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.
27.98	793.80	-8.27	802.07	57.09	955.35	0.875	3.16
57.98	793.80	-3.89	797.59	56.91	952.13	0.872	3.16
87.98	793.80	0.38	793.43	57.18	944.10	0.864	3.13
117.98	793.80	13.14	790.66	56.54	935.79	0.857	3.14
147.98	793.80	48.51	745.00	50.19	867.37	0.789	2.59
177.98	793.80	-6.44	800.24	61.35	911.86	0.829	2.56
207.98	793.80	-45.02	839.82	63.02	941.26	0.856	2.51
237.98	793.80	-45.28	839.08	59.97	949.22	0.885	2.99
267.98	793.80	-9.27	803.07	57.60	951.11	0.870	3.12
297.98	793.80	-2.84	796.64	57.34	946.51	0.866	3.12
327.98	793.80	-9.79	803.59	57.41	953.78	0.875	3.13
357.98	793.80	-6.34	800.15	57.09	953.09	0.873	3.15

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA: 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO., IMMERSION NO.,	α	RADIUS	SLOPE	ABS FLOW ANGLE	TOT. TEMP.	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	ABS FLOW VELOCITY	ABS FLOW ANGLE	TOT. TEMP.	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	14.34	12.36	490.75	-1.46	518.69	582.65	49.93	582.65	49.93	761.68	0.697	1.96
57.98	14.36	12.46	479.76	-1.90	518.69	586.05	50.71	586.05	50.71	757.21	0.692	1.93
87.98	14.35	12.39	487.88	0.11	518.69	569.19	49.40	569.19	49.40	749.66	0.685	1.95
117.98	14.34	12.45	479.64	2.87	518.69	546.20	48.77	546.20	48.77	726.24	0.664	1.92
147.98	13.49	12.13	417.42	10.25	518.69	495.85	50.36	495.85	50.36	643.88	0.585	1.59
177.98	13.38	12.00	420.58	-0.74	518.69	575.62	53.85	575.62	53.85	712.88	0.648	1.61
207.98	13.42	12.07	409.79	-10.34	518.69	644.94	57.57	644.94	57.57	765.12	0.695	1.58
237.98	14.30	12.40	480.98	-9.60	518.69	652.06	53.99	652.06	53.99	806.11	0.737	1.90
267.98	14.33	12.51	470.54	-2.01	518.69	586.68	51.29	586.68	51.29	751.88	0.686	1.90
297.98	14.33	12.50	471.07	-1.53	518.69	582.78	51.06	582.78	51.06	749.26	0.684	1.90
327.98	14.33	12.47	476.10	-0.77	518.69	576.55	50.45	576.55	50.45	747.69	0.683	1.92
357.98	14.32	12.45	476.32	-1.55	518.69	583.03	50.76	583.03	50.76	752.76	0.688	1.91

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA: 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO. #	1	RADIUS =	17.081	SLOPE =	-0.83				
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	REL. MACH NO.	LOCAL WT. FLOW
15.00	18.00	15.60	561.30	30.12	519.79	449.59	0.457	0.747	2.45
45.00	18.02	15.70	562.44	30.48	511.63	440.93	0.449	0.743	2.41
75.00	18.06	15.72	563.03	30.54	513.71	442.46	0.450	0.742	2.42
105.00	18.03	15.58	562.57	31.43	526.17	448.97	0.462	0.736	2.44
135.00	17.45	15.40	557.04	38.80	484.39	377.48	0.426	0.683	2.03
165.00	17.90	15.52	576.75	41.51	527.12	394.74	0.457	0.647	2.08
195.00	17.99	15.57	578.27	39.99	530.55	406.48	0.459	0.658	2.15
225.00	18.64	15.58	584.32	33.77	591.70	491.86	0.512	0.708	2.60
255.00	18.14	15.55	565.37	31.62	540.20	460.02	0.474	0.734	2.49
285.00	18.04	15.68	563.22	30.72	515.13	442.85	0.452	0.741	2.42
315.00	18.00	15.68	561.92	30.46	510.55	440.07	0.448	0.743	2.40
345.00	18.03	15.55	562.63	30.15	529.95	458.27	0.465	0.747	2.49
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. VELOCITY	ABS MACH NO.	LOCAL WT. FLOW	
15.00	982.74	260.86	721.88	58.09	850.44	850.44	0.747	2.45	
45.00	982.74	259.52	723.23	58.63	847.04	847.04	0.743	2.41	
75.00	982.74	261.02	721.72	58.49	846.55	846.55	0.742	2.42	
105.00	982.74	274.38	708.37	57.63	838.67	838.67	0.736	2.44	
135.00	982.74	303.54	679.20	60.94	777.05	777.05	0.683	2.03	
165.00	982.74	349.33	633.42	58.07	746.35	746.35	0.647	2.08	
195.00	982.74	340.96	641.78	57.65	759.58	759.58	0.658	2.15	
225.00	982.74	328.90	653.84	53.05	818.19	818.19	0.708	2.60	
255.00	982.74	283.20	699.54	56.67	837.24	837.24	0.734	2.49	
285.00	982.74	263.14	719.61	58.39	844.96	844.96	0.741	2.42	
315.00	982.74	258.85	723.90	50.70	847.16	847.16	0.743	2.40	
345.00	982.74	266.14	716.60	57.40	850.61	850.61	0.747	2.49	

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO.	1.51 3	RADIUS = 14.056		SLOPE # 3.14			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	18.15	15.07	557.27	33.01	588.36	493.38	0.522
45.00	18.13	15.09	557.48	32.79	584.58	491.42	0.518
75.00	18.15	15.14	557.37	33.17	581.53	486.78	0.516
105.00	18.09	15.00	556.51	33.50	590.25	492.18	0.524
135.00	17.61	14.82	552.98	40.05	564.58	432.19	0.502
165.00	17.72	14.83	565.25	42.79	580.08	425.67	0.510
195.00	17.61	14.86	567.33	43.96	567.13	408.20	0.497
225.00	18.29	14.95	574.35	37.85	621.08	490.39	0.544
255.00	18.01	15.06	561.12	35.83	579.04	469.49	0.511
285.00	18.06	15.08	557.74	34.07	579.52	480.04	0.513
315.00	18.11	15.09	556.66	33.31	582.23	486.59	0.517
345.00	18.12	14.99	556.96	32.61	593.35	499.83	0.527
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	808.70	320.55	488.15	41.70	694.06	0.616	2.94
45.00	809.70	316.60	492.10	45.04	695.45	0.617	2.93
75.00	808.70	318.15	490.55	45.22	691.08	0.613	2.91
105.00	808.70	325.80	492.90	44.45	689.52	0.612	2.92
135.00	808.70	363.28	445.42	45.86	620.64	0.552	2.54
165.00	808.70	394.09	414.61	44.25	594.22	0.523	2.45
195.00	808.70	393.70	415.00	45.47	582.11	0.511	2.34
225.00	808.70	381.12	427.58	41.09	650.62	0.570	2.82
255.00	808.70	338.93	469.77	45.02	664.16	0.587	2.77
285.00	808.70	374.67	484.03	45.24	661.71	0.604	2.85
315.00	808.70	319.72	488.99	45.14	689.84	0.612	2.90
345.00	808.70	319.73	488.97	44.37	699.23	0.621	2.96

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA: 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO. #	#	1.51	RADIUS #	11.030	SLOPE #	11.17	
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	18.73	14.48	558.47	39.87	682.12	523.56	0.611
45.00	18.73	14.52	559.07	39.49	679.53	524.46	0.608
75.00	18.71	14.60	558.40	39.91	670.75	514.52	0.600
105.00	18.71	14.39	557.52	40.30	688.28	524.94	0.617
135.00	18.17	14.12	552.79	43.78	673.03	485.93	0.605
165.00	17.69	14.22	557.78	47.38	631.28	427.47	0.562
195.00	17.87	14.31	552.87	45.57	638.73	447.19	0.567
225.00	18.46	14.52	557.46	38.13	664.73	522.90	0.589
255.00	18.14	14.51	554.09	39.19	640.04	496.06	0.567
285.00	18.74	14.49	558.47	41.10	682.13	514.03	0.611
315.00	18.73	14.53	557.76	40.27	677.23	516.72	0.606
345.00	18.73	14.45	559.32	39.70	685.49	527.42	0.613
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	634.60	437.23	197.87	20.66	559.52	0.501	1.82
45.00	634.60	432.10	202.51	21.11	562.19	0.503	1.82
75.00	634.60	430.31	204.29	21.66	553.59	0.495	1.79
105.00	634.60	445.15	199.45	19.84	558.08	0.500	1.82
135.00	634.60	465.87	168.94	19.17	514.46	0.463	1.66
165.00	634.60	464.53	170.08	21.70	480.06	0.410	1.44
195.00	634.60	456.08	178.52	21.76	481.49	0.427	1.51
225.00	634.60	410.42	224.19	23.21	568.93	0.504	1.78
255.00	634.60	404.43	230.17	24.89	546.86	0.485	1.69
285.00	634.60	448.42	186.19	19.81	546.91	0.489	1.78
315.00	634.60	437.77	195.83	20.85	552.94	0.495	1.80
345.00	634.60	437.87	196.73	20.46	562.91	0.504	1.82

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA: 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO. #	2.20 1	RADIUS #	17.130	SLOPE #	0.24		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
6.83	17.93	16.08	554.33	2.53	456.38	455.93	0.398
36.83	17.92	16.06	544.28	2.15	458.09	457.77	0.399
66.83	17.94	16.11	554.85	2.08	453.62	453.32	0.395
96.83	17.93	16.15	564.38	1.78	447.36	447.14	0.390
126.83	17.99	16.14	563.09	2.07	418.34	418.06	0.364
156.83	17.96	16.08	570.09	3.59	411.93	411.12	0.356
186.83	17.92	16.14	580.00	3.60	442.29	441.42	0.380
216.83	18.09	16.15	582.95	2.65	472.97	472.46	0.406
246.83	18.08	16.06	572.63	2.55	478.52	478.05	0.415
276.83	18.01	16.01	565.99	2.56	473.60	473.13	0.413
306.83	17.97	16.08	565.01	2.32	460.59	460.21	0.401
336.83	17.98	16.12	565.01	2.56	456.37	455.91	0.398
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW.
6.83	985.56	20.15	965.41	64.72	1067.66	0.931	2.33
36.83	985.56	17.18	968.38	64.70	1071.13	0.934	2.33
66.83	985.56	16.50	969.06	64.93	1069.85	0.932	2.31
96.83	985.56	13.92	971.64	65.29	1069.59	0.932	2.29
126.83	985.56	15.13	970.43	66.69	1056.65	0.920	2.14
156.83	985.56	25.81	959.75	66.81	1044.10	0.903	2.07
186.83	985.56	27.75	957.81	65.26	1054.63	0.906	2.19
216.83	985.56	21.70	963.66	63.88	1073.25	0.921	2.35
246.83	985.56	21.32	964.24	63.63	1076.24	0.933	2.41
276.83	985.56	21.14	964.42	63.87	1074.23	0.936	2.40
306.83	985.56	18.68	966.89	64.55	1070.82	0.933	2.35
336.83	985.56	20.42	965.14	64.71	1067.41	0.930	2.33

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO.	2.20 3	RADIUS	14.420	SLOPE	1.113						
CIRC. POSITION	TOT PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
29.00	17.99	15.61	558.37	-0.59	516.17	516.14	0.455	58.28	981.64	0.864	2.84
59.00	17.99	15.65	558.58	-0.83	512.41	512.35	0.451	58.53	981.46	0.864	2.83
89.00	18.02	15.69	558.32	-0.82	510.15	510.10	0.449	58.64	980.15	0.863	2.82
119.00	17.90	15.73	557.17	-0.04	492.66	492.66	0.434	59.31	965.19	0.849	2.73
149.00	17.37	15.77	553.96	1.02	425.04	424.97	0.373	62.66	925.42	0.813	2.55
179.00	17.59	15.81	555.32	0.40	451.56	451.55	0.393	61.35	941.78	0.820	2.46
209.00	17.44	15.72	556.27	-0.17	445.58	445.58	0.387	61.80	942.89	0.819	2.40
239.00	17.99	15.64	571.80	-1.66	518.60	518.33	0.451	58.46	991.05	0.862	2.79
269.00	17.72	15.65	559.82	-1.91	484.21	483.94	0.425	60.22	974.43	0.855	2.65
299.00	17.90	15.66	557.90	-0.65	501.62	501.59	0.441	59.02	977.34	0.857	2.77
329.00	17.95	15.65	558.26	-0.35	506.11	508.10	0.447	58.61	975.49	0.859	2.80
359.00	17.99	15.62	558.26	-0.34	514.52	514.51	0.453	58.29	978.81	0.862	2.84
29.00	829.64	-5.35	834.99	58.28	981.64	981.64	0.864	58.28	981.64	0.864	2.84
59.00	829.64	-7.47	837.11	58.53	981.46	981.46	0.864	58.53	981.46	0.864	2.83
89.00	829.64	-7.31	836.96	58.64	980.15	980.15	0.863	58.64	980.15	0.863	2.82
119.00	829.64	-0.35	829.99	59.31	965.19	965.19	0.849	59.31	965.19	0.849	2.73
149.00	829.64	7.58	822.07	62.66	925.42	925.42	0.813	62.66	925.42	0.813	2.55
179.00	829.64	3.17	826.47	61.35	941.78	941.78	0.820	61.35	941.78	0.820	2.46
209.00	829.64	-1.31	830.96	61.80	942.89	942.89	0.819	61.80	942.89	0.819	2.40
239.00	829.64	-15.02	844.66	58.46	991.05	991.05	0.862	58.46	991.05	0.862	2.79
269.00	829.64	-16.12	845.76	60.22	974.43	974.43	0.855	60.22	974.43	0.855	2.65
299.00	829.64	-5.67	835.31	59.02	977.34	977.34	0.857	59.02	977.34	0.857	2.77
329.00	829.64	-3.07	832.71	58.61	975.49	975.49	0.859	58.61	975.49	0.859	2.80
359.00	829.64	-3.02	832.67	58.29	978.81	978.81	0.862	58.29	978.81	0.862	2.84

TABLE XXI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITH INLET GUIDE VANES AND CASING TREATMENT (Concluded)

PLANE NO. IMMERSION NO.	2.20 5	RADIUS	11.775	SLOPE	1.14										
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS. FLOW ANGLE	ABS. VELOCITY	AXIAL VELOCITY	ABS MACH NO.	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW			
18.56	18.55	15.57	561.89	-0.38	573.27	573.25	0.506	890.39	49.92	890.39	0.785	1.87			
48.56	18.54	15.60	561.64	-1.09	570.06	569.95	0.503	893.68	50.38	893.68	0.788	1.86			
78.56	18.57	15.60	562.10	-1.01	573.20	573.11	0.505	895.08	50.19	895.08	0.789	1.87			
108.56	18.53	15.65	562.15	-1.37	563.84	563.68	0.497	891.72	50.79	891.72	0.786	1.84			
138.56	18.16	15.75	558.78	-0.71	517.17	517.13	0.455	857.40	52.91	857.40	0.755	1.70			
168.56	17.09	15.79	556.45	2.48	386.43	386.43	0.338	765.41	59.68	765.41	0.669	1.25			
198.56	17.37	15.68	565.73	0.97	442.70	442.63	0.385	802.90	56.55	802.90	0.699	1.41			
228.56	18.20	15.57	570.92	-0.04	547.35	547.35	0.478	871.22	51.08	871.22	0.760	1.75			
258.56	18.65	15.58	565.21	-0.08	583.55	583.55	0.514	894.77	49.29	894.77	0.788	1.89			
288.56	18.58	15.64	561.84	0.10	569.71	569.71	0.502	884.44	49.90	884.44	0.780	1.86			
318.56	18.57	15.63	561.74	-0.23	569.39	569.39	0.502	886.75	50.05	886.75	0.782	1.86			
348.56	18.54	15.58	561.79	-0.23	572.57	572.57	0.505	888.75	49.89	888.75	0.784	1.87			

TABLE XXII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT

PLANE NO. IMMERSION NO. =	0.95	RADIUS =	17.420	SLOPE =	-2.91		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP,	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.73	10.82	518.69	-0.32	639.80	639.79	0.593
57.98	13.69	10.84	518.69	-0.11	634.62	634.62	0.588
87.98	13.70	10.84	518.69	1.42	635.01	634.82	0.588
117.98	13.70	10.87	518.69	5.43	631.54	628.71	0.585
147.98	11.79	9.86	518.69	4.71	556.36	554.48	0.511
177.98	11.83	9.96	518.69	-2.02	545.91	545.57	0.501
207.98	11.75	10.13	518.69	-6.83	508.11	504.51	0.465
237.98	13.80	11.00	518.69	-7.73	625.21	619.52	0.578
267.98	13.80	10.93	518.69	-3.33	633.81	632.74	0.587
297.98	13.73	10.81	518.69	-1.73	640.92	640.62	0.594
327.98	13.70	10.83	518.69	-1.27	636.48	636.32	0.589
357.98	13.75	10.84	518.69	-2.04	639.87	639.46	0.593
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH WT. FLOW
27.98	1431.78	-3.63	1435.41	65.98	1571.54	1.456	3.28
57.98	1431.78	11.21	1432.99	66.11	1567.23	1.451	3.25
87.98	1431.78	15.75	1416.03	65.85	1551.82	1.437	3.26
117.98	1431.78	59.78	1372.00	65.38	1509.19	1.397	3.23
147.98	1431.78	45.70	1386.08	68.80	1492.87	1.371	2.55
177.98	1431.78	-19.26	1451.04	69.39	1550.22	1.423	2.52
207.98	1431.78	-60.41	1492.19	71.32	1575.17	1.441	2.36
237.98	1431.78	-84.12	1515.90	67.77	1637.61	1.515	3.22
267.98	1431.78	-36.83	1468.61	66.69	1599.12	1.480	3.27
297.98	1431.78	-19.37	1451.15	66.18	1584.27	1.470	3.28
327.98	1431.78	-14.10	1445.88	66.25	1579.71	1.463	3.26
357.98	1431.78	-22.83	1454.62	66.27	1588.97	1.472	3.28

TABLE XXII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. = 0.95		RADIUS = 13.797		SLOPE = 4.85			
IMMERISION NO. = 3							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	33.80	10.26	518.69	-0.46	709.07	709.04	0.662
57.98	13.80	10.26	518.69	0.90	706.34	706.25	0.660
87.98	13.89	10.36	518.69	3.02	704.91	703.93	0.658
117.98	13.82	10.39	518.69	8.50	696.48	688.82	0.650
147.98	11.62	9.35	518.69	8.99	610.48	602.97	0.564
177.98	11.62	9.49	518.69	-7.82	590.01	584.52	0.544
207.98	11.63	9.71	518.69	-12.80	558.23	544.36	0.513
237.98	13.83	10.53	518.69	12.38	681.33	665.29	0.634
267.98	13.87	10.34	518.69	-5.42	706.23	703.08	0.660
297.98	13.82	10.19	518.69	-3.14	718.08	717.01	0.672
327.98	13.81	10.21	518.69	-1.96	715.68	715.26	0.669
357.98	13.85	10.25	518.69	-0.67	714.10	714.05	0.668

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1134.00	-5.71	1139.71	58.43	1342.26	1.254	3.75
57.98	1134.00	11.08	1122.92	57.83	1326.55	1.239	3.74
87.98	1134.00	37.09	1096.94	57.51	1303.36	1.217	3.76
117.98	1134.00	102.98	1031.02	56.25	1239.95	1.157	3.68
147.98	1134.00	95.44	1038.56	59.86	1200.91	1.109	2.84
177.98	1134.00	-80.32	1214.32	64.30	1347.68	1.242	2.79
207.98	1134.00	-123.67	1257.67	66.00	1370.42	1.259	2.64
237.98	1134.00	-146.03	1280.03	62.54	1442.60	1.343	3.59
267.98	1134.00	-66.65	1200.65	59.65	1391.36	1.299	3.75
297.98	1134.00	-39.28	1173.28	58.57	1375.03	1.286	3.78
327.98	1134.00	-24.48	1158.48	58.31	1361.49	1.273	3.77
357.98	1134.00	-8.36	1142.36	57.99	1342.47	1.259	3.78

TABLE XXII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED, NEAR STALL;
WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. IMMERSED NO.	PLANE NO. IMMERSED NO.	RADIUS	SLOPE	CIRC. POSITION	TOT. PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.84	9.910	15.45	27.98	10.35	518.69	-1.20	679.19	679.04	0.634
57.98	13.83			57.98	10.37	518.69	0.14	675.57	675.56	0.630
87.98	13.90			87.98	10.44	518.69	3.76	674.98	673.13	0.629
117.98	13.81			117.98	10.54	518.69	12.49	658.03	642.46	0.612
147.98	12.42			147.98	9.81	518.69	-1.10	614.97	614.97	0.570
177.98	11.74			177.98	9.41	518.69	-10.56	596.89	586.77	0.552
207.98	12.10			207.98	9.72	518.69	-24.26	595.68	543.06	0.550
237.98	13.79			237.98	10.41	518.69	-17.72	670.46	638.66	0.625
267.98	13.85			267.98	10.48	518.69	-10.16	666.97	656.50	0.622
297.98	13.79			297.98	10.27	518.69	-5.81	684.47	680.95	0.639
327.98	13.82			327.98	10.28	518.69	-3.52	685.78	684.49	0.641
357.98	13.78			357.98	10.31	518.69	-2.49	679.04	678.40	0.634
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	LOCAL WT. FLOW				
27.98	814.52	-14.22	828.75	50.67	1.000	2.37				
57.98	814.52	1.63	812.89	50.27	0.986	2.36				
87.98	814.52	44.27	770.25	48.85	0.954	2.37				
117.98	814.52	142.33	672.19	46.30	0.865	2.27				
147.98	814.52	-11.83	826.35	53.34	0.954	2.00				
177.98	814.52	*109.41	923.93	57.58	1.012	1.82				
207.98	814.52	*244.78	1059.38	62.66	1.100	1.74				
237.98	814.52	*204.03	1018.55	57.91	1.121	2.23				
267.98	814.52	*117.71	932.23	54.85	1.062	2.51				
297.98	814.52	-69.51	863.83	52.39	1.042	2.36				
327.98	814.52	-42.12	856.64	51.87	1.024	2.37				
357.98	814.52	-29.55	844.07	51.81	1.011	2.36				

TABLE XXII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO., #	#	RADIUS #	17,081	SLOPE #	-0,83		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	21.50	16.64	606.73	31.63	717.60	610.97	0.616
45.00	21.57	16.53	607.13	32.16	731.11	618.91	0.629
75.00	21.69	16.57	607.03	33.01	734.83	616.17	0.632
105.00	21.50	16.19	604.90	35.07	751.98	615.48	0.649
135.00	20.68	16.30	598.95	42.21	687.69	509.34	0.593
165.00	23.45	17.80	649.26	44.73	769.18	546.41	0.640
195.00	23.58	17.43	661.84	22.22	811.14	750.92	0.671
225.00	25.44	18.12	682.24	40.90	870.29	657.81	0.713
255.00	22.22	16.70	617.20	30.95	762.16	653.65	0.652
285.00	21.67	16.71	605.24	30.92	721.71	619.18	0.621
315.00	21.47	16.67	607.77	30.77	714.83	613.74	0.613
345.00	21.66	16.49	608.51	31.64	740.86	630.73	0.637
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	1403.92	376.39	1027.53	59.26	1193.45	1.027	3.39
45.00	1403.92	389.19	1014.73	58.62	1186.58	1.022	3.42
75.00	1403.92	400.38	1003.54	58.45	1177.61	1.013	3.42
105.00	1403.92	432.04	971.88	57.65	1158.36	0.993	3.36
135.00	1403.92	462.05	941.87	61.60	1070.77	0.923	2.79
165.00	1403.92	541.36	862.56	57.65	1021.06	0.850	3.05
195.00	1403.92	306.69	1097.23	55.61	1329.58	1.100	4.06
225.00	1403.92	569.83	834.09	51.74	1068.27	0.871	3.62
255.00	1403.92	391.96	1011.96	57.14	1214.71	1.030	3.61
285.00	1403.92	370.79	1033.13	59.06	1204.46	1.036	3.47
315.00	1403.92	365.49	1038.43	59.42	1206.43	1.035	3.41
345.00	1403.92	388.65	1015.22	58.15	1193.24	1.027	3.48

TABLE XXII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO., IMMERSSION NO., #	# 1.51 3	RADIUS #	14.056	SLOPE #	3.14		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
				REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	21.72	15.83	598.89	33.96	787.60	653.27	0.687
45.00	21.62	15.81	597.09	33.94	782.71	649.38	0.683
75.00	21.61	15.66	598.27	34.96	794.02	650.75	0.693
105.00	21.35	15.38	594.14	36.93	798.40	638.21	0.700
135.00	20.15	15.43	584.09	45.18	717.71	505.92	0.629
165.00	21.69	16.36	622.33	50.00	760.65	488.90	0.647
195.00	21.61	15.96	634.13	30.88	794.65	681.99	0.672
225.00	23.75	16.90	652.14	46.65	879.58	603.77	0.740
255.00	21.88	15.68	611.13	35.73	814.27	662.64	0.706
285.00	22.32	16.02	601.87	35.35	806.28	657.59	0.703
315.00	22.18	16.06	603.58	34.32	799.21	660.08	0.695
345.00	22.10	15.94	600.11	33.64	801.23	667.04	0.699
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	1155.29	439.94	715.35	47.60	948.76	0.845	3.94
45.00	1155.29	436.96	718.33	47.89	988.35	0.845	3.92
75.00	1155.29	454.97	700.32	47.10	956.00	0.835	3.90
105.00	1155.29	479.72	675.57	46.63	929.36	0.815	3.79
135.00	1155.29	509.06	646.23	51.94	820.71	0.719	3.01
165.00	1155.29	582.73	572.56	49.51	752.89	0.641	2.91
195.00	1155.29	407.87	747.42	47.82	1011.80	0.856	3.91
225.00	1155.29	639.63	515.66	40.50	794.00	0.668	3.54
255.00	1155.29	476.66	678.63	45.68	948.48	0.821	3.90
285.00	1155.29	466.53	688.76	46.33	952.27	0.830	4.02
315.00	1155.29	450.58	704.74	46.87	955.57	0.839	4.02
345.00	1155.29	443.88	711.44	46.84	979.21	0.851	4.06

TABLE XXII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO, IMERSION NO. #	1.51	RADIUS #	11.030	SLOPE #	11.17		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	23.00	15.65	602.04	40.45	858.78	653.47	0.754
45.00	22.86	15.53	600.13	40.91	858.74	648.93	0.755
75.00	22.73	15.46	598.72	41.65	857.07	640.62	0.755
105.00	22.40	15.20	594.36	42.86	856.52	627.83	0.757
135.00	20.99	14.80	584.70	47.87	810.41	543.59	0.718
165.00	21.93	15.56	597.19	54.78	813.50	469.17	0.713
195.00	21.31	15.29	619.86	40.59	812.17	616.79	0.698
225.00	22.39	15.46	631.00	47.29	884.99	586.73	0.740
255.00	23.35	15.76	613.22	40.87	873.88	662.18	0.763
285.00	22.99	15.72	600.96	41.40	853.27	640.01	0.749
315.00	23.00	15.65	604.37	40.73	860.35	651.98	0.754
345.00	21.66	15.65	602.28	40.28	792.26	604.38	0.690
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOR ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.
15.00	906.58	557.21	349.37	28.13	741.00	0.651	2.36
45.00	906.58	562.42	344.15	27.94	734.59	0.646	2.33
75.00	906.58	569.59	336.99	27.75	723.97	0.637	2.29
105.00	906.58	582.64	333.94	27.29	706.47	0.625	2.23
135.00	906.58	601.06	305.52	29.34	623.57	0.553	1.80
165.00	906.58	664.58	242.00	27.28	529.81	0.463	1.68
195.00	906.58	528.38	378.20	31.52	723.51	0.621	2.08
225.00	906.58	635.57	271.01	24.79	646.30	0.553	1.99
255.00	906.58	573.01	333.57	26.74	741.49	0.646	2.37
285.00	906.58	564.52	342.26	28.14	725.77	0.637	2.32
315.00	906.58	561.36	345.23	27.90	737.73	0.647	2.34
345.00	906.58	512.25	394.33	33.12	721.65	0.628	2.31

TABLE XXII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. = 2.20 IMMERSION NO. = 1		RADIUS = 17.430		SLOPE = 0.24			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
6.83	21.26	18.09	613.76	1.14	576.90	576.79	0.486
36.83	21.16	18.06	612.62	0.86	570.89	570.32	0.481
66.83	21.12	18.10	612.05	0.89	562.97	562.93	0.474
96.83	21.02	18.16	610.86	0.82	547.61	547.55	0.461
126.83	20.59	18.19	607.80	1.23	504.39	504.27	0.425
156.83	21.10	18.29	627.46	2.44	549.94	549.44	0.457
186.83	23.09	18.25	644.13	2.72	720.41	719.60	0.590
216.83	23.33	18.37	675.44	1.89	731.93	731.53	0.594
246.83	22.94	18.13	652.15	1.34	714.10	713.91	0.590
276.83	21.61	18.00	622.79	1.10	617.65	617.53	0.518
306.83	21.38	18.00	615.99	1.50	595.93	595.73	0.502
336.83	21.25	18.02	613.45	1.27	582.84	582.70	0.491
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
6.83	1407.95	11.46	1396.49	67.56	1510.92	1.273	3.09
36.83	1407.95	8.52	1399.83	67.83	1511.18	1.274	3.05
66.83	1407.95	6.79	1401.16	68.11	1510.01	1.272	3.02
96.83	1407.95	7.85	1400.10	68.64	1503.36	1.267	2.95
126.83	1407.95	10.79	1397.15	70.15	1485.37	1.251	2.72
156.83	1407.95	23.40	1384.55	88.36	1489.58	1.238	2.90
186.83	1407.95	34.19	1373.75	62.35	1550.81	1.269	3.67
216.83	1407.95	24.20	1383.75	62.14	1565.22	1.271	3.70
246.83	1407.95	16.66	1391.29	62.84	1563.76	1.291	3.69
276.83	1407.95	11.90	1386.04	68.14	1528.53	1.280	3.27
306.83	1407.95	15.60	1392.35	68.84	1514.44	1.275	3.17
336.83	1407.95	12.94	1395.04	67.33	1511.82	1.274	3.11

TABLE XXII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO., #	#	RADIUS =	14.420	SLOPE =	1.33										
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.								
29.00	21.41	17.53	603.70	-0.74	634.35	634.30	0.542								
59.00	21.39	17.50	603.08	-1.29	635.88	635.72	0.543								
89.00	21.25	17.56	601.52	-1.43	619.62	619.43	0.529								
119.00	21.11	17.60	599.08	-0.70	603.62	603.78	0.516								
149.00	19.85	17.69	590.99	-1.74	479.75	479.52	0.409								
179.00	20.71	17.64	618.33	-4.88	576.37	574.28	0.484								
209.00	20.92	17.45	632.49	-3.98	619.96	618.46	0.516								
239.00	22.86	17.33	652.67	-1.83	771.07	770.68	0.640								
269.00	21.16	17.33	610.03	-0.61	637.46	637.42	0.542								
299.00	21.48	17.47	609.93	-0.15	648.14	648.14	0.551								
329.00	21.50	17.50	608.16	-0.07	645.98	645.98	0.550								
359.00	21.47	17.56	604.48	-0.51	637.26	637.23	0.544								
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.								
29.00	1185.21	-8.18	1193.39	62.01	1351.48	1.154	3.69								
59.00	1185.21	-14.28	1199.49	62.08	1357.54	1.160	3.70								
89.00	1185.21	-15.51	1200.72	62.71	1351.08	1.154	3.61								
119.00	1185.21	7.42	1192.63	63.15	1336.75	1.143	3.54								
149.00	1185.21	-14.28	1199.78	68.21	1292.06	1.102	2.81								
179.00	1185.21	-49.07	1234.27	65.05	1361.33	1.142	3.25								
209.00	1185.21	-43.06	1228.26	63.27	1375.18	1.144	3.40								
239.00	1185.21	-24.68	1205.88	57.50	1434.49	1.191	4.20								
269.00	1185.21	-6.74	1191.94	61.86	1351.68	1.148	3.63								
299.00	1185.21	-1.65	1186.85	61.36	1352.30	1.150	3.73								
329.00	1185.21	-0.77	1185.98	61.42	1350.49	1.150	3.73								
359.00	1185.21	-5.63	1190.83	61.85	1350.61	1.153	3.71								

TABLE XXI) - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Concluded)

PLANE NO. IMMERSION NO. #	#	RADIUS #	11.775	SLOPE #	1.14				
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	REL. MACH NO.	LOCAL WT. FLOW
18.56	22.20	17.45	605.88	0.67	695.18	695.14	0.596		
48.56	22.09	17.43	603.49	0.23	689.00	688.99	0.592		
78.56	22.00	17.48	602.61	-0.29	678.92	678.91	0.583		
108.56	21.81	17.55	599.55	-0.00	658.13	658.13	0.565		
138.56	20.84	17.52	593.79	2.72	587.85	587.19	0.504		
168.56	18.53	18.02	561.55	4.34	235.05	234.38	0.200		
198.56	18.19	17.88	613.82	-5.26	191.44	190.64	0.158		
228.56	20.27	17.76	634.82	3.02	531.72	530.98	0.439		
258.56	22.91	17.42	624.92	-0.11	752.21	752.21	0.638		
288.56	22.46	17.44	606.11	-0.14	713.63	713.63	0.612		
318.56	22.40	17.36	606.76	0.04	715.56	715.56	0.614		
348.56	22.32	17.45	606.61	0.25	704.06	704.06	0.604		
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW		
18.56	967.81	8.12	959.69	54.08	1189.00	1.016	2.40		
48.56	967.81	2.79	965.02	54.47	1185.74	1.018	2.38		
78.56	967.81	-3.42	971.23	55.05	1184.99	1.017	2.35		
108.56	967.81	-0.03	967.83	55.78	1170.40	1.005	2.29		
138.56	967.81	27.85	939.96	58.01	1108.30	0.951	2.04		
168.56	967.81	17.80	950.01	76.14	978.50	0.831	0.82		
198.56	967.81	-17.55	985.35	79.05	1003.63	0.828	0.62		
228.56	967.81	28.05	939.76	60.53	1079.59	0.890	1.72		
258.56	967.81	-1.48	969.29	52.19	1226.92	1.041	2.54		
288.56	967.81	-1.73	969.54	53.65	1203.86	1.032	2.46		
318.56	967.81	0.49	967.32	53.51	1200.21	1.033	2.46		
348.56	967.81	3.04	964.80	53.88	1196.57	1.024	2.43		

TABLE XXIII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT

FLANE NO. IMMERISION NO.	0.95 1	RADIUS	17.420	SLOPE	-1.91		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.61	10.62	518.69	-1.45	653.48	653.27	0.606
57.98	13.58	10.69	518.69	-0.05	642.28	642.28	0.595
87.98	13.60	10.71	518.69	1.80	641.20	640.88	0.594
117.98	13.58	10.70	518.69	5.93	639.96	636.53	0.593
147.98	11.52	9.68	518.69	7.01	549.24	545.13	0.504
177.98	11.55	9.47	518.69	3.58	584.91	585.74	0.541
207.98	11.49	9.23	518.69	-3.11	615.93	615.03	0.569
237.98	13.71	10.13	518.69	-9.32	718.05	708.57	0.671
267.98	13.71	10.47	518.69	-5.37	680.38	677.20	0.633
297.98	13.63	10.50	518.69	-4.67	668.30	666.08	0.621
327.98	13.58	10.59	518.69	-3.23	653.42	652.38	0.606
357.98	13.65	10.66	518.69	-1.92	651.60	651.23	0.604
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1431.78	-16.57	1448.35	65.72	1588.86	1.474	3.29
57.98	1431.78	-0.55	1432.33	65.85	1569.75	1.455	3.25
87.98	1431.78	20.19	1411.68	65.58	1550.27	1.436	3.25
117.98	1431.78	66.12	1365.67	65.01	1506.72	1.396	3.22
147.98	1431.78	67.08	1364.70	68.23	1469.55	1.349	2.45
177.98	1431.78	36.66	1395.12	67.22	1513.11	1.394	2.60
207.98	1431.78	-33.46	1465.24	67.23	1589.08	1.468	2.67
237.98	1431.78	116.24	1548.02	65.40	1702.48	1.592	3.46
267.98	1431.78	-63.60	1495.38	65.64	1641.57	1.528	3.39
297.98	1431.78	-54.43	1486.22	65.86	1628.65	1.514	3.33
327.98	1431.78	-36.86	1468.64	66.05	1607.02	1.491	3.28
357.98	1431.78	-21.79	1453.57	65.87	1592.76	1.477	3.29

TABLE XX111 - TASK 11 STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO., #	3	RADIUS #	13.797	SLOPE #	4.85		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP,	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.69	10.11	518.69	-0.51	716.86	716.83	0.670
57.98	13.72	10.17	518.69	2.28	712.27	711.71	0.666
87.98	13.79	10.26	518.69	3.27	707.98	706.83	0.661
117.98	13.73	10.29	518.69	9.11	699.71	690.87	0.653
147.98	11.37	9.20	518.69	15.97	603.20	579.92	0.557
177.98	11.30	8.87	518.69	1.79	643.31	642.99	0.598
207.98	11.32	8.68	518.69	-6.26	672.43	668.41	0.625
237.98	13.73	9.67	518.69	12.22	767.90	750.52	0.723
267.98	13.81	9.91	518.69	-7.02	748.49	742.89	0.703
297.98	13.72	9.97	518.69	-4.05	734.12	732.29	0.688
327.98	13.69	10.04	518.69	-3.53	727.46	726.08	0.681
357.98	13.76	10.10	518.69	-1.61	722.89	722.60	0.676
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1134.00	-6.39	1140.39	57.85	1344.98	1.260	3.75
57.98	1134.00	28.32	1105.68	57.23	1314.93	1.529	3.74
87.98	1134.00	40.38	1093.62	57.12	1302.15	1.216	3.74
117.98	1134.00	110.83	1023.17	55.97	1234.58	1.152	3.66
147.98	1134.00	185.98	968.02	59.08	1128.44	1.041	2.69
177.98	1134.00	20.12	1113.88	60.00	1286.15	1.192	2.90
207.98	1134.00	-73.34	1207.35	61.03	1380.02	1.283	2.97
237.98	1134.00	-162.47	1296.47	59.93	1498.04	1.410	3.80
267.98	1134.00	-91.44	1225.44	58.77	1433.03	1.346	3.84
297.98	1134.00	-51.90	1185.90	58.50	1393.77	1.306	3.79
327.98	1134.00	-44.79	1178.79	58.37	1384.46	1.296	3.77
357.98	1134.00	-20.35	1154.35	57.95	1361.87	1.274	3.78

TABLE XXIII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO. #	0.95	RADIUS #	9.910	SLOPE #	15.45		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.73	10.20	518.69	-1.70	686.67	686.37	0.642
57.98	13.74	10.26	518.69	0.37	681.14	681.13	0.636
87.98	13.82	10.34	518.69	4.88	679.33	676.87	0.634
117.98	13.58	10.37	518.69	13.37	656.63	638.83	0.611
147.98	13.36	9.80	518.69	30.21	707.04	610.99	0.662
177.98	11.35	8.74	518.69	7.40	646.28	640.89	0.601
207.98	11.63	8.75	518.69	21.47	673.60	652.25	0.628
237.98	13.66	9.76	518.69	17.60	731.13	696.92	0.687
267.98	13.70	10.01	518.69	11.78	705.16	690.32	0.660
297.98	13.72	10.07	518.69	7.91	700.26	693.60	0.655
327.98	13.73	10.10	518.69	-6.89	697.67	692.63	0.653
357.98	13.68	10.17	518.69	-3.67	686.29	684.88	0.641
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	814.52	-20.32	834.84	50.57	1080.77	1.010	2.36
57.98	814.52	4.40	810.12	49.94	1058.41	0.988	2.36
87.98	814.52	57.75	756.72	48.19	1015.31	0.948	2.36
117.98	814.52	151.85	662.67	46.05	920.46	0.857	2.22
147.98	814.52	355.80	458.72	36.90	764.02	0.715	2.03
177.98	814.52	83.23	731.29	48.77	972.39	0.904	1.87
207.98	814.52	-168.27	982.79	56.43	1179.54	1.100	1.92
237.98	814.52	-221.02	1035.54	56.06	1248.22	1.173	2.32
267.98	814.52	-143.95	958.47	54.24	1181.19	1.106	2.34
297.98	814.52	-96.32	910.84	52.71	1144.67	1.071	2.37
327.98	814.52	-83.68	898.20	52.36	1134.24	1.061	2.37
357.98	814.52	-43.89	858.41	51.42	1098.15	1.026	2.35

TABLE XXIII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO.	1 1	1.51	RADIUS = 17.881		SLOPE = -0.83		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	19.10	14.12	591.56	23.02	766.51	705.49	0.671
45.00	18.98	14.10	587.98	23.45	757.98	695.38	0.665
75.00	18.79	13.88	585.97	23.81	764.05	699.02	0.672
105.00	18.36	13.63	582.16	25.59	755.96	681.84	0.667
135.00	17.04	13.25	571.75	33.55	691.06	575.92	0.611
165.00	18.82	13.88	615.41	36.30	784.96	632.58	0.674
195.00	18.87	14.07	610.32	33.10	768.58	643.85	0.662
225.00	20.95	15.59	629.26	22.87	782.71	721.17	0.664
255.00	19.70	14.74	596.38	21.10	755.88	704.74	0.658
285.00	19.40	14.40	595.22	21.38	763.99	711.43	0.666
315.00	19.20	14.27	594.44	21.61	761.64	708.11	0.665
345.00	19.07	14.19	590.73	22.12	758.60	702.74	0.664
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	1403.92	299.71	1104.24	57.43	1310.34	1.147	3.45
45.00	1403.92	301.64	1102.28	57.75	1303.29	1.144	3.42
75.00	1403.92	308.45	1095.47	57.46	1299.49	1.143	3.40
105.00	1403.92	326.46	1077.46	57.67	1278.07	1.125	3.27
135.00	1403.92	381.93	1021.99	60.60	1173.09	1.037	2.70
165.00	1403.92	464.76	939.16	56.04	1132.33	0.972	2.93
195.00	1403.92	419.72	984.20	56.81	1176.09	1.012	3.04
225.00	1403.92	304.23	1099.69	56.74	1315.06	1.115	3.66
255.00	1403.92	271.90	1132.02	58.10	1333.47	1.151	3.56
285.00	1403.92	278.48	1125.44	57.70	1331.45	1.161	3.53
315.00	1403.92	280.49	1123.43	57.78	1327.97	1.159	3.48
345.00	1403.92	285.70	1118.22	57.65	1328.71	1.156	3.46

TABLE XXIII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. IMMERISION NO. #	1.51 3	RADIUS #	14.056	SLOPE #	3.14										
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW			
15.00	20.28	14.35	588.86	28.21	815.01	718.20	0.720								
45.00	20.09	14.14	584.75	28.53	818.48	719.09	0.726								
75.00	19.84	13.99	581.45	28.59	814.34	714.39	0.724								
105.00	19.34	13.52	577.47	30.12	821.17	710.29	0.734								
135.00	17.61	12.74	561.99	37.69	771.65	610.64	0.695								
165.00	17.68	12.87	591.39	42.43	785.15	579.51	0.689								
195.00	18.47	13.05	600.10	36.07	824.51	666.43	0.721								
225.00	21.04	14.98	624.71	31.24	832.18	711.49	0.713								
255.00	21.59	15.46	600.45	27.55	809.52	719.50	0.706								
285.00	20.30	14.45	592.79	27.09	811.79	722.70	0.714								
315.00	20.35	14.52	590.42	27.62	807.29	715.32	0.711								
345.00	20.33	14.34	589.02	27.61	818.83	725.55	0.723								
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW								
15.00	1155.29	385.26	770.03	46.99	1052.98	0.930	4.03								
45.00	1155.29	390.91	764.38	46.75	1049.46	0.931	4.01								
75.00	1155.29	390.89	764.40	46.94	1046.26	0.930	3.96								
105.00	1155.29	412.07	743.24	46.30	1028.05	0.918	3.84								
135.00	1155.29	471.77	683.52	48.22	916.56	0.826	3.17								
165.00	1155.29	529.74	625.55	47.19	852.73	0.748	2.88								
195.00	1155.29	485.47	669.82	45.15	944.87	0.827	3.34								
225.00	1155.29	431.64	723.05	45.74	1014.83	0.869	3.92								
255.00	1155.29	370.55	784.74	47.48	1064.66	0.929	4.25								
285.00	1155.29	369.73	785.56	47.39	1067.43	0.939	4.05								
315.00	1155.29	374.21	781.07	47.52	1059.13	0.933	4.04								
345.00	1155.29	379.54	775.75	46.92	1062.18	0.938	4.07								

TABLE XXIII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. = 1.51		RADIUS = 11.030		SLOPE = 11.17					
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	REL. MACH NO.	LOCAL WT. FLOW
15.00	22.61	15.07	600.45	37.98	878.82	692.30	0.775	0.691	2.42
45.00	22.37	14.88	596.99	38.41	877.72	687.74	0.777	0.687	2.39
75.00	22.07	14.65	593.58	38.61	877.63	685.79	0.779	0.687	2.36
105.00	21.54	14.21	589.24	39.40	880.90	680.70	0.785	0.684	2.30
135.00	21.69	13.82	574.48	42.51	868.54	640.11	0.784	0.646	2.03
165.00	18.60	12.50	571.53	45.64	851.27	592.23	0.769	0.601	1.81
195.00	19.06	12.95	600.63	42.70	860.85	632.34	0.757	0.625	1.89
225.00	21.71	14.99	619.41	30.54	852.89	734.55	0.737	0.555	2.46
255.00	22.83	15.48	614.69	39.20	870.83	674.84	0.757	0.663	2.36
285.00	23.02	15.34	607.25	37.13	863.10	704.04	0.774	0.699	2.48
315.00	22.65	15.18	603.52	37.20	874.99	696.92	0.769	0.697	2.44
345.00	22.58	15.04	601.02	37.88	879.34	694.10	0.775	0.692	2.42

TABLE XXIII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. IMMERISION NO. #	2.20 1	RADIUS #	17.430	SLOPE #	0.24										
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.			
6.83	18.58	14.48	588.04	0.56	697.22	697.18	0.608	1401.09	63.55	1564.96	1.364	3.20			
36.83	18.49	14.55	586.22	0.65	682.95	682.91	0.595	1400.19	64.00	1557.85	1.358	3.15			
66.83	18.46	14.69	585.34	0.59	667.48	667.44	0.581	1401.07	64.53	1551.93	1.352	3.10			
96.83	18.27	14.87	583.06	0.34	632.71	632.70	0.550	1404.18	65.74	1540.14	1.340	2.97			
126.83	17.83	15.13	579.43	1.74	565.09	564.83	0.490	1390.74	67.90	1501.07	1.302	2.68			
156.83	17.21	15.12	576.70	2.03	510.98	510.66	0.435	1389.84	69.83	1480.69	1.259	2.33			
186.83	18.11	15.23	618.90	2.26	598.80	598.33	0.503	1384.28	66.62	1509.06	1.267	2.69			
216.83	18.46	15.18	620.92	1.74	637.83	637.53	0.537	1388.68	65.34	1527.96	1.286	2.86			
246.83	19.48	14.81	600.69	1.08	737.53	737.40	0.638	1394.68	62.12	1577.07	1.365	3.41			
276.83	19.08	14.52	596.54	0.92	733.90	733.41	0.637	1396.21	62.29	1577.11	1.369	3.35			
306.83	18.93	14.39	592.81	0.50	733.19	733.16	0.639	1581.71	62.39	1581.71	1.378	3.34			
336.83	18.73	14.36	590.68	0.30	719.84	719.83	0.627	1404.18	62.66	1577.14	1.375	3.28			

TABLE XXIII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. = 2.20		RADIUS = 14.420		SLOPE = 1.13			
IMMERSION NO. = 3							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
29.00	18.94	14.40	593.02	-0.36	732.65	732.64	0.638
59.00	19.01	14.47	589.80	-0.53	729.43	729.39	0.637
89.00	18.90	14.52	587.31	-0.27	715.41	715.40	0.625
119.00	18.66	14.73	583.21	0.19	676.30	676.30	0.591
149.00	17.25	14.72	571.54	0.16	551.37	551.37	0.481
179.00	17.64	14.53	599.50	-0.16	623.14	623.13	0.534
209.00	18.33	14.62	606.92	0.60	675.12	675.08	0.577
239.00	20.17	14.68	625.75	1.11	807.135	807.20	0.689
269.00	19.74	14.57	607.07	0.06	778.25	778.25	0.673
299.00	19.17	14.20	598.15	-0.16	768.21	768.21	0.669
329.00	19.15	14.27	596.54	-0.40	759.81	759.81	0.662
359.00	19.09	14.29	595.92	-0.35	753.77	753.75	0.656
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
29.00	1185.21	-4.62	1189.88	58.36	1397.30	1.217	3.64
59.00	1185.21	-6.76	1191.97	58.54	1397.43	1.220	3.66
89.00	1185.21	-3.35	1188.55	58.96	1387.25	1.212	3.61
119.00	1185.21	2.29	1182.91	60.24	1362.59	1.190	3.46
149.00	1185.21	1.52	1183.69	65.02	1309.80	1.139	2.81
179.00	1185.21	-1.69	1186.90	62.30	1340.53	1.148	3.02
209.00	1185.21	7.11	1178.10	60.19	1357.81	1.161	3.28
239.00	1185.21	15.43	1169.58	55.39	1421.08	1.212	3.93
269.00	1185.21	0.84	1184.36	56.69	1417.18	1.225	3.86
299.00	1185.21	-2.19	1187.40	57.30	1414.24	1.231	3.76
329.00	1185.21	-5.29	1190.50	57.45	1412.31	1.230	3.74
359.00	1185.21	-4.60	1189.81	57.65	1408.47	1.226	3.72

TABLE XXIII - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Concluded)

PLANE NO. IMMERSSION NO.	2.20 5	RADIUS	11.775	SLOPE	1.14										
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.					REL. MACH NO.	LOCAL WT. FLOW		
18.56	19.89	13.72	607.28	-5.88	857.26	852.75	0.748					1.184	2.40		
48.56	20.17	14.36	602.97	-4.86	818.77	815.83	0.714					1.150	2.39		
78.56	20.74	14.56	599.66	-3.44	832.37	830.87	0.729					1.151	2.50		
108.56	20.76	15.03	594.78	-1.28	793.71	793.51	0.695					1.108	2.46		
138.56	19.72	15.15	584.61	0.49	713.74	713.71	0.625					1.049	2.23		
168.56	16.83	14.55	566.93	5.17	526.82	524.67	0.461					0.926	1.57		
198.56	17.91	14.26	603.49	2.86	676.18	675.34	0.580					0.989	1.90		
228.56	18.71	13.61	619.57	2.53	804.98	804.20	0.690					1.056	2.16		
258.56	20.69	13.89	627.41	-4.76	900.64	897.53	0.776					1.186	2.49		
288.56	19.82	12.88	615.11	-6.38	923.20	919.46	0.809					1.234	2.44		
318.56	19.55	13.07	610.29	-6.31	892.79	887.37	0.781					1.213	2.38		
348.56	19.80	13.54	607.07	-6.69	866.63	860.74	0.757					1.199	2.39		
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW								
18.56	967.81	-87.79	1055.60	51.07	1357.01	1.184	2.40								
48.56	967.81	-69.35	1037.16	51.81	1319.58	1.150	2.39								
78.56	967.81	-49.97	1017.77	50.77	1313.85	1.151	2.50								
108.56	967.81	-17.77	985.58	51.16	1265.32	1.108	2.46								
138.56	967.81	6.07	961.74	53.42	1197.64	1.049	2.23								
168.56	967.81	47.51	920.30	60.31	1059.35	0.926	1.57								
198.56	967.81	33.73	934.08	54.13	1152.65	0.989	1.90								
228.56	967.81	35.57	932.23	49.22	1231.18	1.056	2.16								
258.56	967.81	-74.78	1042.59	49.28	1375.70	1.186	2.49								
288.56	967.81	102.86	1070.67	49.34	1411.29	1.234	2.44								
318.56	967.81	-98.17	1065.97	50.22	1384.99	1.213	2.38								
348.56	967.81	100.95	1068.76	51.15	1372.26	1.199	2.39								

TABLE XXIV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT

PLANE NO. = 0.95 IMPRESSION NO. = 1		RADIUS = 17.420		SLOPE = -1.91			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	14.29	12.95	518.69	-6.70	415.99	413.15	0.378
57.98	14.32	12.93	518.69	1.97	422.93	422.68	0.384
87.98	13.45	12.60	518.69	-5.69	339.43	337.76	0.307
117.98	14.27	13.00	518.69	-14.88	405.80	391.70	0.368
147.98	14.31	12.94	518.69	-9.49	419.82	413.49	0.381
177.98	14.33	12.96	518.69	-7.61	420.33	416.45	0.382
207.98	14.30	12.95	518.69	-5.20	417.35	415.63	0.379
237.98	13.45	12.51	518.69	3.25	356.93	356.35	0.323
267.98	13.45	12.63	518.69	-11.32	332.52	326.05	0.300
297.98	14.31	12.96	518.69	-10.64	416.27	409.11	0.378
327.98	14.29	12.96	518.69	-9.42	414.42	408.83	0.376
357.98	14.31	12.95	518.69	-8.61	419.97	415.24	0.381

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1002.25	-48.54	1050.79	66.54	1129.09	1.029	2.43
57.98	1002.25	14.55	987.70	66.83	1074.34	0.976	2.49
87.98	1002.25	-33.66	1035.94	71.94	1089.58	0.985	1.92
117.98	1002.25	110.11	1106.36	70.50	1173.65	1.065	2.31
147.98	1002.25	-69.08	1071.33	68.90	1148.36	1.043	2.44
177.98	1002.25	-55.60	1057.85	68.51	1136.87	1.033	2.46
207.98	1002.25	-37.86	1040.11	68.22	1120.08	1.017	2.45
237.98	1002.25	20.24	982.04	70.06	1044.67	0.945	2.01
267.98	1002.25	-65.28	1067.53	73.02	1116.21	1.008	1.85
297.98	1002.25	-76.87	1079.11	69.24	1154.06	1.048	2.41
327.98	1002.25	-67.83	1070.07	69.09	1149.51	1.040	2.41
357.98	1002.25	-62.84	1065.09	68.70	1140.17	1.038	2.45

TABLE XXIV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. IMMERSION NO.	α	0.95	3	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	SLOPE	4.85	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27,98		14.39	12.32	518.69	-0.81	514.82	514.77	0.471				
57,98		14.40	12.44	518.69	7.36	503.63	499.48	0.460				
87,98		13.41	12.19	518.69	-1.51	407.67	407.57	0.370				
117,98		14.40	12.47	518.69	-12.45	500.23	488.46	0.457				
147,98		14.39	12.30	518.69	-4.99	522.03	520.05	0.478				
177,98		14.40	12.33	518.69	-1.90	517.72	517.43	0.474				
207,98		14.41	12.39	518.69	0.55	511.25	511.22	0.468				
237,98		13.42	12.09	518.69	10.69	425.51	418.13	0.387				
267,98		13.43	12.18	518.69	-8.54	414.10	409.51	0.376				
297,98		14.42	12.33	518.69	-7.44	520.88	516.49	0.477				
327,98		14.40	12.31	518.69	-3.89	521.52	520.32	0.478				
357,98		14.40	12.30	518.69	-2.85	522.24	521.59	0.478				
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. FLOW VELOCITY	REL. MACH NO.	LOCAL WT. FLOW				
27,98	793.80	-7.27	801.07	57.28	952.21	0.871	3.15					
57,98	793.80	64.53	729.27	55.59	883.92	0.808	3.07					
87,98	793.80	-9.34	803.14	63.09	900.64	0.817	2.42					
117,98	793.80	-107.85	901.85	61.55	1025.46	0.937	3.01					
147,98	793.80	-45.44	839.24	58.21	987.51	0.904	3.17					
177,98	793.80	-17.15	810.95	57.46	961.96	0.881	3.16					
207,98	793.80	4.91	788.89	57.06	940.05	0.860	3.13					
237,98	793.80	78.92	714.89	59.88	828.19	0.753	2.47					
267,98	793.80	-61.53	855.53	64.42	948.51	0.861	2.43					
297,98	793.80	-67.48	861.28	59.05	1004.28	0.920	3.16					
327,98	793.80	-35.35	829.15	57.89	978.89	0.896	3.17					
357,98	793.80	-26.00	819.80	57.53	971.67	0.890	3.18					

TABLE XXIV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO. 5 IMMERSED NO. 5		RADIUS = 9.910		SLOPE = 15.45			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	14.39	12.54	518.69	0.09	472.16	472.16	0.431
57.98	14.38	12.64	518.69	12.94	458.92	447.26	0.419
87.98	13.36	12.20	518.69	-0.57	384.23	384.23	0.349
117.98	14.35	12.31	518.69	-19.83	500.72	471.04	0.458
147.98	14.36	12.44	518.69	-5.88	482.02	479.48	0.441
177.98	14.40	12.50	518.69	-2.22	479.12	478.76	0.438
207.98	14.40	12.60	518.69	3.55	465.16	464.37	0.425
237.98	13.97	12.30	518.69	27.08	457.28	407.13	0.417
267.98	13.51	12.14	518.69	-17.03	417.66	399.35	0.380
297.98	14.37	12.43	518.69	-10.31	485.68	477.84	0.444
327.98	14.38	12.47	518.69	4.57	481.32	479.92	0.440
357.98	14.36	12.47	518.69	-3.15	478.03	477.31	0.437

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	570.16	0.73	569.44	50.34	739.73	0.675	1.91
57.98	570.16	102.76	467.41	46.26	646.93	0.590	1.82
87.98	570.16	-2.51	572.67	56.14	689.63	0.626	1.49
117.98	570.16	-169.83	739.99	57.52	877.19	0.803	1.88
147.98	570.16	-49.41	619.58	52.26	783.44	0.716	1.93
177.98	570.16	-18.58	588.74	50.88	758.83	0.693	1.93
207.98	570.16	27.18	542.98	49.46	714.47	0.652	1.89
237.98	570.16	208.20	361.97	41.64	544.77	0.497	1.61
267.98	570.16	-122.29	692.46	60.03	799.36	0.727	1.55
297.98	570.16	-86.88	657.05	53.97	812.43	0.743	1.92
327.98	570.16	-36.67	606.83	51.66	773.67	0.707	1.93
357.98	570.16	-26.27	596.43	51.33	763.91	0.698	1.92

TABLE XXIV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO, IMMERSSION NO., #	CIRC. POSITION	TOT. PRESSURE	TOT. PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	REL. MACH NO.	ABS MACH NO.	SLOPE *	RADIUS * 17,001	
										1	2
15.00	18.12	15.76	562.55	30.61	513.85	442.32	0.451				
45.00	17.51	15.57	558.02	41.43	471.21	353.30	0.414				
75.00	18.28	15.64	581.19	41.20	551.21	414.77	0.477				
105.00	18.32	15.76	567.46	28.29	536.02	472.00	0.469				
135.00	18.10	15.69	563.17	28.58	519.87	456.53	0.456				
165.00	18.09	15.76	562.20	29.50	510.91	444.70	0.448				
195.00	17.97	15.64	562.54	32.96	512.45	429.96	0.449				
225.00	18.20	15.67	578.10	42.35	539.59	398.78	0.468				
255.00	18.68	15.72	587.38	33.25	579.61	484.91	0.500				
285.00	18.15	15.77	565.72	28.34	518.13	456.03	0.453				
315.00	18.09	15.75	563.69	28.48	512.85	450.34	0.449				
345.00	18.07	15.75	563.10	28.93	510.33	446.64	0.447				
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH VELOCITY	REL. MACH NO.	LOCAL WT. FLOW				
15.00	982.74	261.72	721.02	58.47	845.88	0.742	2.43				
45.00	982.74	311.79	670.95	62.23	758.28	0.666	1.92				
75.00	982.74	363.04	619.71	56.21	745.70	0.649	2.20				
105.00	982.74	254.02	728.72	57.07	868.23	0.759	2.57				
135.00	982.74	248.69	734.05	58.12	864.44	0.758	2.49				
165.00	982.74	251.56	731.19	58.69	853.80	0.751	2.44				
195.00	982.74	278.82	703.92	58.58	824.84	0.723	2.34				
225.00	982.74	363.49	619.25	57.22	736.55	0.638	2.12				
255.00	982.74	317.88	664.86	53.90	822.91	0.710	2.57				
285.00	982.74	245.97	736.78	58.24	866.49	0.758	2.49				
315.00	982.74	244.33	738.44	58.62	866.90	0.758	2.46				
345.00	982.74	246.88	735.87	58.74	860.81	0.754	2.44				

TABLE XXIV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	PLANE NO. = 1.51	
								RADIUS = 11.030	SLOPE = 11.17
								REL. MACH NO.	LOCAL WT. FLOW
15.00	18.72	14.56	558.29	40.11	674.77	516.05	0.604	0.495	1.80
45.00	17.90	14.32	550.15	46.49	633.40	436.07	0.569	0.422	1.50
75.00	18.06	14.28	563.26	46.91	657.02	448.85	0.584	0.422	1.51
105.00	19.46	14.82	568.37	36.63	705.86	566.43	0.628	0.538	1.98
135.00	19.01	14.55	559.26	38.66	695.13	542.83	0.623	0.518	1.89
165.00	18.84	14.59	558.00	39.45	679.20	524.42	0.608	0.504	1.83
195.00	17.97	14.38	557.65	41.44	635.53	476.44	0.567	0.466	1.63
225.00	17.65	14.25	553.81	50.76	623.66	394.59	0.557	0.378	1.34
255.00	18.83	14.75	570.90	38.09	671.39	542.53	0.593	0.524	1.87
285.00	19.19	14.69	561.68	38.84	696.65	542.59	0.623	0.516	1.90
315.00	19.05	14.56	563.01	38.51	698.73	546.77	0.624	0.520	1.90
345.00	18.91	14.60	560.93	38.92	685.17	533.11	0.612	0.510	1.86
	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.			
15.00	634.60	434.75	199.85	21.17	553.39	0.495			
45.00	634.60	459.38	175.22	21.89	469.96	0.422			
75.00	634.60	479.80	154.80	19.03	474.79	0.422			
105.00	634.60	421.19	213.41	20.64	605.30	0.538			
135.00	634.60	434.21	200.40	20.26	578.64	0.518			
165.00	634.60	431.61	202.99	21.16	562.34	0.504			
195.00	634.60	420.60	214.00	24.19	522.30	0.466			
225.00	634.60	482.99	131.61	21.02	422.68	0.378			
255.00	634.60	395.51	239.09	23.78	592.87	0.524			
285.00	634.60	436.94	197.66	20.02	577.47	0.516			
315.00	634.60	435.05	199.56	20.05	582.85	0.520			
345.00	634.60	430.41	204.20	20.96	570.87	0.510			

TABLE XXIV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

PLANE NO, IMMERSION NO. #	2.20	RADIUS = 17.130		SLOPE = 0.24			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
5.83	17.99	16.18	564.80	2.40	449.34	448.95	0.391
36.83	17.97	16.18	565.27	1.98	448.04	447.78	0.390
66.83	17.83	16.22	564.13	1.74	425.74	425.55	0.371
96.83	17.69	16.28	570.45	1.59	401.92	401.77	0.347
126.83	18.13	16.26	585.50	2.62	464.80	464.31	0.398
156.83	18.17	16.22	568.95	3.02	467.81	467.16	0.407
186.83	18.01	16.19	566.30	2.43	451.30	450.89	0.393
216.83	17.98	16.20	564.95	2.22	444.10	443.76	0.387
246.83	17.55	16.22	561.58	1.85	387.90	387.69	0.338
276.83	17.96	16.27	582.18	2.96	440.23	439.65	0.377
306.83	18.15	16.27	575.28	3.59	460.69	459.79	0.398
336.83	17.99	16.21	565.53	3.07	445.98	445.34	0.388
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
5.83	985.56	18.85	966.71	65.09	1065.87	0.929	2.30
36.83	985.56	15.48	970.08	65.22	1068.44	0.930	2.29
66.83	985.56	12.89	972.67	66.37	1061.69	0.924	2.18
96.83	985.56	11.13	974.43	67.59	1054.01	0.911	2.04
126.83	985.56	21.26	964.34	64.29	1070.27	0.916	2.31
156.83	985.56	24.67	960.90	64.07	1068.44	0.928	2.39
186.83	985.56	19.14	966.42	64.99	1060.43	0.928	2.31
216.83	985.56	17.19	968.37	65.38	1065.21	0.927	2.28
246.83	985.56	12.51	973.06	68.28	1047.45	0.912	1.99
276.83	985.56	22.71	962.85	65.46	1058.47	0.907	2.19
306.83	985.56	28.88	956.68	64.33	1061.44	0.917	2.33
336.83	985.56	23.80	961.69	65.15	1059.80	0.922	2.28

TABLE XXIV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 70% SPEED; INTERMEDIATE FLOW; WITHOUT INLET GUIDE VANES; WITH CASING TREATMENT (Continued)

CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL HT. FLOW
29.00	18.19	15.67	575.07	-1.18	536.10	535.99	0.466	3	14.420	1.13				
59.00	18.02	15.70	559.72	-1.63	508.99	508.78	0.447							
89.00	18.09	15.76	560.75	-2.10	510.06	509.72	0.448							
119.00	18.07	15.84	560.55	-1.41	497.84	497.69	0.437							
149.00	17.80	15.83	556.60	0.12	468.93	468.93	0.412							
179.00	17.62	15.70	566.04	-0.60	470.84	470.81	0.410							
209.00	17.58	15.69	570.56	-1.57	468.70	468.53	0.407							
239.00	17.85	15.70	562.98	-1.40	493.32	493.17	0.432							
269.00	18.10	15.79	559.98	-1.41	506.74	506.59	0.445							
299.00	18.09	15.88	559.35	0.39	495.69	495.68	0.435							
329.00	18.01	15.79	558.94	0.14	497.98	497.98	0.438							
359.00	17.30	15.69	553.49	-0.92	427.50	427.45	0.376							
29.00	829.64	-11.06	840.74	5.48	997.03	997.03	0.866							
59.00	829.64	-14.51	844.16	58.92	985.63	985.63	0.866							
89.00	829.64	-18.70	848.34	59.00	989.70	989.70	0.869							
119.00	829.64	-12.22	841.86	59.41	977.97	977.97	0.858							
149.00	829.64	0.97	828.68	60.50	952.16	952.16	0.837							
179.00	829.64	-4.95	834.59	60.57	958.23	958.23	0.835							
209.00	829.64	-12.80	842.45	60.92	963.97	963.97	0.836							
239.00	829.64	-12.09	841.74	59.63	975.57	975.57	0.854							
269.00	829.64	-12.48	842.12	58.97	982.75	982.75	0.864							
299.00	829.64	-3.37	833.01	59.25	969.34	969.34	0.852							
329.00	829.64	1.23	828.42	58.99	964.57	964.57	0.850							
359.00	829.64	-6.85	836.49	62.93	939.38	939.38	0.826							

TABLE XXV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT

PLANE NO. = 0.95		RADIUS = 17.420		SLOPE = 1.91			
IMMERSION NO. = 1							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.75	10.86	518.69	-1.27	636.55	636.40	0.589
57.98	13.71	10.89	518.69	-0.45	629.96	629.94	0.583
87.98	13.73	10.87	518.69	0.88	634.61	634.53	0.586
117.98	13.71	10.89	518.69	5.20	629.42	626.84	0.582
147.98	11.88	9.87	518.69	5.22	567.14	564.79	0.521
177.98	11.93	9.92	518.69	-3.12	566.73	565.89	0.521
207.98	11.81	10.34	518.69	-11.93	481.91	471.50	0.440
237.98	13.71	11.72	518.69	-10.72	522.62	514.17	0.479
267.98	13.67	11.31	518.69	-1.11	573.40	573.30	0.528
297.98	13.73	10.95	518.69	-1.11	624.14	624.02	0.577
327.98	13.75	10.94	518.69	-1.33	626.96	626.79	0.580
357.98	13.78	10.89	518.69	-1.38	636.45	636.25	0.589
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1431.78	-14.06	1445.85	66.24	1579.71	1.463	3.27
57.98	1431.78	-4.97	1436.75	66.33	1568.78	1.452	3.24
87.98	1431.78	9.76	1422.02	65.95	1557.17	1.442	3.26
117.98	1431.78	57.01	1374.77	65.49	1510.93	1.398	3.22
147.98	1431.78	51.62	1380.16	67.74	1491.25	1.371	2.60
177.98	1431.78	-30.88	1462.67	68.85	1568.32	1.442	2.62
207.98	1431.78	-93.62	1531.40	72.89	1602.34	1.462	2.24
237.98	1431.78	-93.59	1525.37	71.37	1609.70	1.474	2.79
267.98	1431.78	-11.06	1442.84	68.33	1552.156	1.428	3.03
297.98	1431.78	-12.07	1443.85	66.63	1572.193	1.455	3.22
327.98	1431.78	-14.51	1446.29	66.57	1576.127	1.458	3.24
357.98	1431.78	-15.35	1447.13	66.27	1580.183	1.464	3.28

TABLE XXV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Continued)

PLANE NO. IMPRESSION NO.	PLANE NO. = 0,95	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ARS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27,98	13,82	10,34	518,69	-0,96	678,57	678,47	0,633	
57,98	13,83	10,38	518,69	-1,01	675,79	675,68	0,630	
87,98	13,94	10,43	518,69	2,84	678,61	677,78	0,633	
117,98	13,81	10,48	518,69	10,92	664,12	652,09	0,619	
147,98	12,64	9,70	518,69	23,51	654,49	600,18	0,609	
177,98	11,93	9,60	518,69	-12,50	592,31	578,27	0,547	
207,98	12,57	9,91	518,69	-28,22	622,55	548,54	0,577	
237,98	13,76	10,63	518,69	-18,25	645,81	613,33	0,600	
267,98	13,99	10,62	518,69	-8,64	655,07	647,63	0,610	
297,98	13,77	10,38	518,69	-4,56	670,00	667,88	0,625	
327,98	13,83	10,40	518,69	-2,56	673,25	672,58	0,628	
357,98	13,74	10,34	518,69	-3,35	675,93	674,77	0,631	

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27,98	814,52	-11,39	825,91	50,60	1068,86	0,998	2,36
57,98	814,52	-11,92	826,45	50,73	1067,50	0,996	2,36
87,98	814,52	33,68	780,84	49,04	1033,97	0,965	2,38
117,98	814,52	125,83	688,69	46,56	948,43	0,883	2,29
147,98	814,52	261,24	553,48	42,68	816,43	0,759	1,95
177,98	814,52	-128,21	342,73	58,48	1105,95	1,022	1,83
207,98	814,52	-294,41	1108,93	63,68	1237,18	1,146	1,80
237,98	814,52	-202,24	1016,77	58,90	1187,43	1,103	2,18
267,98	814,52	-98,38	912,91	54,65	1119,30	1,042	2,30
297,98	814,52	-53,23	867,75	52,42	1095,02	1,021	2,33
327,98	814,52	-30,13	844,65	51,47	1079,72	1,007	2,35
357,98	814,52	-39,45	853,97	51,69	1088,39	1,015	2,35

TABLE XXV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL; WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Continued)

PLANE NO. = 1.51		RADIUS = 17.081		SLOPE = -0.83					
IMPERISON NO. = 1									
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	REL. MACH NO.	ABS MACH NO.	LOCAL WT. FLOW
15.00	22.29	17.06	608.31	32.77	733.49	616.74	1.014	0.630	3.51
45.00	22.44	16.86	609.49	33.41	758.17	632.90	1.009	0.652	3.58
75.00	22.49	16.99	610.94	33.75	752.05	625.29	1.003	0.646	3.55
105.00	22.24	16.77	608.53	35.64	752.94	611.89	0.984	0.648	3.44
135.00	21.25	16.59	599.78	42.44	676.85	495.52	0.921	0.582	2.83
165.00	24.60	13.38	633.05	44.57	792.36	564.47	0.947	0.659	3.25
195.00	24.66	13.12	668.19	48.01	832.91	557.27	0.771	0.687	3.11
225.00	25.23	17.94	700.36	48.03	883.92	594.14	0.715	0.715	3.14
255.00	21.53	16.28	667.78	50.05	785.18	504.21	0.645	0.645	2.51
285.00	22.70	16.68	627.08	38.40	797.58	625.09	0.679	0.679	3.42
315.00	22.33	17.05	610.06	34.07	738.35	611.65	0.633	0.633	3.47
345.00	22.34	17.00	610.13	33.85	742.27	616.44	0.637	0.637	3.49
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW		
15.00	1403.92	397.05	1006.87	58.51	1180.74	1.014	3.51		
45.00	1403.92	417.45	986.47	57.32	1172.04	1.009	3.58		
75.00	1403.92	417.85	986.07	57.62	1167.61	1.003	3.55		
105.00	1403.92	438.77	969.15	57.63	1142.77	0.984	3.44		
135.00	1403.92	456.73	947.18	62.19	1070.83	0.921	2.83		
165.00	1403.92	556.06	847.86	56.35	1018.57	0.947	3.25		
195.00	1403.92	619.32	784.90	54.03	965.61	0.795	3.11		
225.00	1403.92	657.17	746.75	51.63	952.41	0.771	3.14		
255.00	1403.92	601.90	802.02	57.84	947.35	0.778	2.51		
285.00	1403.92	495.38	908.54	55.47	1102.80	0.939	3.42		
315.00	1403.92	413.59	990.33	58.30	1163.99	0.998	3.47		
345.00	1403.92	413.48	990.44	58.10	1166.60	1.002	3.49		

**TABLE XXV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Continued)**

PLANE NO. = 1.51		RADIUS = 14.056		SLOPE = 3.14			
IMMERISION NO. = 3							
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	22.08	16.14	602.64	36.44	786.68	632.89	0.1683
45.00	21.89	16.01	600.24	36.41	784.74	631.54	0.1683
75.00	21.72	16.04	600.48	36.68	773.17	620.11	0.1672
105.00	21.42	15.79	596.27	38.25	772.95	607.05	0.1674
135.00	20.52	16.10	588.54	46.01	687.97	477.83	0.1599
165.00	22.47	16.87	623.07	49.43	766.66	498.57	0.1653
195.00	22.29	16.63	640.46	55.04	786.36	443.87	0.1661
225.00	24.17	16.93	657.93	46.61	874.46	600.71	0.1732
255.00	22.19	16.08	617.91	36.93	807.47	645.13	0.1694
285.00	22.55	16.29	606.29	37.98	803.75	633.55	0.1697
315.00	22.39	16.28	603.47	36.34	793.97	639.59	0.1690
345.00	22.36	16.16	602.94	36.00	800.65	642.97	0.1697
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	1155.29	467.26	688.03	47.39	934.83	0.812	3.87
45.00	1155.29	465.80	609.49	47.51	935.01	0.814	3.84
75.00	1155.29	461.79	593.50	48.20	930.31	0.808	3.77
105.00	1155.29	478.49	676.80	48.11	909.16	0.793	3.66
135.00	1155.29	494.96	660.33	54.11	815.08	0.709	2.92
165.00	1155.29	582.41	572.88	48.97	759.45	0.646	3.06
195.00	1155.29	649.11	506.18	48.75	673.23	0.566	2.61
225.00	1155.29	635.47	519.82	40.87	794.39	0.665	3.57
255.00	1155.29	485.20	570.09	46.07	930.37	0.799	3.84
285.00	1155.29	494.61	660.68	48.20	915.36	0.794	3.90
315.00	1155.29	470.43	684.86	46.96	937.08	0.814	3.94
345.00	1155.29	477.44	677.85	46.51	934.28	0.813	3.95

TABLE XXV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Continued)

CIRC. POSITION	TOT. PRESSURE	TOT. TEMP.	STATIC PRESSURE	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.	SLOPE = 1.13	
								RADIUS = 14.420	PLATE NO. = 2.20 IMPERISION NO. = 3
29.00	21.56	604.01	17.99	-0.99	604.90	604.81	0.515		
59.00	21.52	604.01	18.05	-1.70	596.87	596.60	0.508		
89.00	21.55	603.91	18.10	-1.89	594.30	593.97	0.506		
119.00	21.22	600.90	18.18	-2.07	565.77	565.57	0.481		
149.00	20.25	594.42	18.17	-4.59	465.22	464.92	0.395		
179.00	21.54	622.53	18.17	-4.93	579.63	577.77	0.485		
209.00	21.02	633.11	17.96	-4.93	579.13	576.99	0.480		
239.00	23.48	655.67	18.01	-3.53	758.44	757.00	0.627		
269.00	21.23	621.49	18.13	-2.19	574.25	573.82	0.480		
299.00	21.93	611.22	18.07	-1.86	628.72	628.39	0.533		
329.00	22.03	609.87	18.09	-0.67	633.31	633.26	0.538		
359.00	21.67	606.40	18.04	-0.69	609.73	609.69	0.518		
CIRC. POSITION	WHEEL SPEED	REL. TANG VELOCITY	ABS TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW		
29.00	1185.21	1195.64	-19.43	63.17	1339.90	1.141	3.59		
59.00	1185.21	1202.95	-17.74	63.62	1342.77	1.143	3.55		
89.00	1185.21	1204.84	-19.63	63.76	1343.29	1.143	3.54		
119.00	1185.21	1199.96	-14.76	64.76	1326.57	1.129	3.37		
149.00	1185.21	1201.99	-16.79	60.85	1288.77	1.095	2.78		
179.00	1185.21	1231.56	-46.36	64.87	1360.35	1.138	3.34		
209.00	1185.21	1234.93	-49.73	64.96	1363.08	1.130	3.24		
239.00	1185.21	1231.94	-46.73	59.43	1445.93	1.196	4.24		
269.00	1185.21	1207.18	-21.97	64.58	1336.62	1.118	3.31		
299.00	1185.21	1205.63	-20.43	62.47	1359.57	1.153	3.72		
329.00	1185.21	1192.62	-7.41	62.03	1350.32	1.147	3.76		
359.00	1185.21	1192.59	-7.39	62.92	1339.40	1.139	3.62		

TABLE XXV - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; NEAR STALL;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Concluded)

PLANE NO., IMPRESSION NO., #	#	RADIUS #	11,775	SLOPE #	1,14		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
18.56	22.38	17.89	604.17	0.17	670.78	670.78	0.575
48.56	22.39	17.91	603.03	0.17	669.19	669.19	0.574
78.56	22.35	17.97	602.46	0.06	655.22	655.22	0.561
108.56	22.33	18.08	600.95	0.72	636.58	636.58	0.545
138.56	21.27	17.97	597.14	3.26	580.22	579.29	0.497
168.56	19.01	18.51	584.20	6.80	230.77	229.38	0.195
198.56	18.75	18.36	614.96	11.57	209.51	205.26	0.173
228.56	20.91	18.16	636.74	18.05	550.14	544.72	0.454
258.56	23.12	18.02	624.29	11.82	717.51	717.15	0.607
288.56	23.02	18.08	610.18	10.27	699.36	699.36	0.598
318.56	22.67	17.96	604.89	10.06	683.92	683.92	0.586
348.56	22.48	17.91	603.86	10.15	675.39	675.38	0.579
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.
18.56	967.81	1.95	965.86	55.22	1175.94	1.007	2.37
48.56	967.81	1.94	965.87	55.28	1175.04	1.007	2.37
78.56	967.81	0.66	967.15	55.88	1168.00	1.001	2.32
108.56	967.81	8.05	959.76	56.45	1151.95	0.986	2.27
138.56	967.81	32.97	934.84	58.21	1099.77	0.942	2.05
168.56	967.81	25.32	942.49	76.32	970.00	0.822	2.02
198.56	967.81	-42.03	1009.83	78.51	1030.98	0.950	0.69
228.56	967.81	-77.03	1044.84	62.46	1178.31	0.972	1.81
258.56	967.81	-22.81	990.62	54.10	1222.96	1.034	2.49
288.56	967.81	-3.25	971.06	54.24	1196.69	1.023	2.48
318.56	967.81	-0.95	968.76	54.78	1165.85	1.017	2.43
348.56	967.81	-1.78	969.88	55.14	1181.62	1.013	2.39

TABLE XXVI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA: 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITHOUT CAJING TREATMENT

PLANE NO. IMMERISION NO. #	0.95	RADIUS =	17.420	SLOPE =	-1.91		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.59	10.69	518.69	-1.05	642.67	642.56	0.596
57.98	13.57	10.67	518.69	-0.34	643.18	643.16	0.596
87.98	13.59	10.74	518.69	1.68	636.67	636.59	0.590
117.98	13.57	10.73	518.69	7.39	634.94	629.67	0.588
147.98	11.50	9.60	518.69	10.96	559.67	549.46	0.514
177.98	11.52	9.36	518.69	2.86	599.75	599.00	0.553
207.98	11.49	9.22	518.69	-3.46	616.03	614.91	0.569
237.98	13.63	10.22	518.69	-5.33	701.54	692.27	0.655
267.98	13.62	10.48	518.69	-5.84	669.87	666.39	0.623
297.98	13.57	10.58	518.69	-3.73	654.14	652.76	0.607
327.98	13.55	10.61	518.69	-2.16	648.78	648.32	0.602
357.98	13.63	10.67	518.69	-2.42	648.77	648.20	0.602
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
27.98	1431.78	-11.81	1443.59	66.01	1580.14	1.464	3.25
57.98	1431.78	-3.82	1435.60	65.87	1573.09	1.458	3.25
87.98	1431.78	18.63	1413.16	65.75	1549.92	1.435	3.23
117.98	1431.78	61.65	1350.14	65.00	1469.75	1.379	3.20
147.98	1431.78	106.42	1325.37	67.48	1434.75	1.318	2.46
177.98	1431.78	29.88	1401.90	66.66	1524.51	1.406	2.63
207.98	1431.78	-37.17	1468.95	67.29	1592.46	1.471	2.67
237.98	1431.78	113.69	1545.47	65.87	1693.43	1.580	3.40
267.98	1431.78	-68.21	1499.99	66.05	1641.36	1.526	3.33
297.98	1431.78	-42.51	1474.29	66.12	1612.34	1.496	3.28
327.98	1431.78	-24.44	1456.22	66.00	1594.02	1.478	3.26
357.98	1431.78	-27.35	1459.13	66.05	1596.63	1.481	3.28

TABLE XXVI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Continued)

PLANE NO. IMMERISION NO. #	0.95	RADIUS #	13.797	SLOPE #	4.85		
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	13.66	10.15	518.69	-0.71	710.22	710.16	0.664
97.98	13.67	10.20	518.69	1.44	704.75	704.53	0.658
87.98	13.74	10.29	518.69	2.92	700.81	699.90	0.654
117.98	13.69	10.30	518.69	9.51	695.80	685.74	0.648
147.98	11.37	9.25	518.69	14.60	596.16	576.91	0.550
177.98	11.36	8.83	518.69	2.33	654.72	654.18	0.608
207.98	11.32	8.70	518.69	-7.04	669.38	664.34	0.622
237.98	13.68	9.67	518.69	±11.72	764.21	748.28	0.719
267.98	13.69	9.89	518.69	-6.76	740.66	735.51	0.695
297.98	13.68	10.00	518.69	-5.15	728.00	725.06	0.682
327.98	13.67	10.05	518.69	-3.46	721.71	720.39	0.675
357.98	13.71	10.12	518.69	-0.64	717.27	717.23	0.671
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL MACH NO.
27.98	1134.00	-8.81	1142.84	58.14	1345.49	1.257	3.72
97.98	1134.00	17.66	1116.34	57.74	1320.06	1.233	3.70
87.98	1134.00	35.70	1098.30	57.49	1302.35	1.215	3.71
117.98	1134.00	114.59	1039.11	56.06	1228.34	1.146	3.63
147.98	1134.00	150.29	983.74	59.61	1140.39	1.052	2.68
177.98	1134.00	26.62	1107.38	59.43	1286.18	1.194	2.94
207.98	1134.00	-82.01	1216.01	61.35	1385.65	1.288	2.95
237.98	1134.00	±155.16	1289.19	58.87	1490.62	1.403	3.79
267.98	1134.00	-87.24	1221.24	58.194	1423.62	1.337	3.78
297.98	1134.00	-65.41	1199.41	58.85	1401.54	1.312	3.76
327.98	1134.00	-43.59	1177.59	58.54	1380.47	1.292	3.75
357.98	1134.00	-7.96	1141.96	57.87	1348.52	1.261	3.75

TABLE XXVI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW; WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Continued)

PLANE NO, IMMERSION NO, #	α	RADIUS #	SLOPE #	CIRC, POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
27.98	0.95	9.910	15.45	27.98	13.68	10.21	518.69	-2.22	661.79	681.28	0.637
57.98				57.98	13.70	10.24	518.69	0.17	679.31	679.31	0.634
87.98				87.98	13.78	10.36	518.69	3.53	673.47	672.20	0.628
117.98				117.98	13.70	10.38	518.69	13.13	665.84	648.43	0.620
147.98				147.98	13.41	9.92	518.69	29.47	697.85	607.10	0.652
177.98				177.98	11.45	8.75	518.69	6.42	654.47	650.38	0.609
207.98				207.98	11.88	8.86	518.69	18.17	685.48	651.30	0.640
237.98				237.98	13.61	9.76	518.69	16.32	726.85	697.55	0.683
267.98				267.98	13.63	9.99	518.69	12.48	685.87	685.87	0.658
297.98				297.98	13.67	10.06	518.69	8.29	702.48	689.80	0.652
327.98				327.98	13.69	10.12	518.69	-5.49	692.71	689.53	0.648
357.98				357.98	13.62	10.16	518.69	-4.27	682.25	680.36	0.637

CIRC, POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	LOCAL WT. FLOW.
27.98	814.52	-26.41	840.93	50.99	1.010	2.35
57.98	814.52	2.03	812.49	50.10	0.989	2.34
87.98	814.52	41.42	773.10	48.99	0.956	2.34
117.98	814.52	151.25	663.27	45.65	0.864	2.26
147.98	814.52	343.10	471.42	37.83	0.719	2.04
177.98	814.52	73.12	741.40	48.74	0.918	1.91
207.98	814.52	-213.75	1028.27	57.65	1.137	1.95
237.98	814.52	1204.28	1016.80	55.60	1.159	2.32
267.98	814.52	1151.55	966.37	54.64	1.109	2.32
297.98	814.52	510.57	915.09	52.99	1.072	2.35
327.98	814.52	-66.25	880.77	51.94	1.046	2.36
357.98	814.52	-50.80	865.32	51.82	1.028	2.33

**TABLE XXVI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Continued)**

PLANE NO. IMPRESSION NO.	PLANE NO. IMPRESSION NO.	RADIUS	SLOPE	TOT. PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15100	1	17.081	-0.83	14.25	586.32	21.81	754.11	700.16	0.662
15100	1	17.081	-0.83	14.24	586.38	22.69	746.40	688.64	0.655
15100	1	17.081	-0.83	14.07	582.58	23.78	751.49	687.71	0.662
15100	1	17.081	-0.83	13.78	579.79	24.81	741.13	672.71	0.654
15100	1	17.081	-0.83	13.32	567.77	32.49	667.17	562.71	0.591
15100	1	17.081	-0.83	13.89	612.08	35.92	764.30	618.99	0.657
15100	1	17.081	-0.83	14.09	613.15	34.13	764.42	632.79	0.656
15100	1	17.081	-0.83	15.62	631.25	24.07	792.67	723.72	0.672
15100	1	17.081	-0.83	14.95	594.64	20.86	734.34	686.22	0.639
15100	1	17.081	-0.83	14.53	590.05	20.02	757.30	711.55	0.663
15100	1	17.081	-0.83	14.52	591.53	21.67	752.14	699.00	0.657
15100	1	17.081	-0.83	14.46	588.45	35.64	745.42	605.80	0.653

CIPC POSITION	WHEEL SPEED	ABS TAIG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15100	1403.92	280.12	1123.80	58.08	1324.07	1.163	3.48
15100	1403.92	287.91	1116.01	58.32	1311.37	1.151	3.42
15100	1403.92	302.96	1100.96	58.01	1298.10	1.144	3.40
15100	1403.92	311.62	1092.90	58.39	1283.34	1.132	3.27
15100	1403.92	356.42	1045.50	61.71	1187.31	1.051	2.66
15100	1403.92	488.34	955.58	57.07	1136.55	0.978	2.87
15100	1403.92	428.65	975.07	57.02	1162.40	0.998	2.97
15100	1403.92	323.34	1080.58	56.19	1300.55	1.102	3.68
15100	1403.92	261.44	1142.48	59.01	1332.73	1.159	3.51
15100	1403.92	259.25	1144.67	58.13	1347.80	1.150	3.59
15100	1403.92	277.69	1126.23	58.17	1325.52	1.158	3.51
15100	1403.92	434.35	969.57	58.00	1143.27	1.001	3.04

**TABLE XXVI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITHOUT INLET GUIDE VANES; WITHOUT CASI-3 TREATMENT (Continued)**

PLANE NO. IMMERSION NO. #	1.51	RADIUS = 14.056		SLOPE = 3.14			
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
15.00	19.13	14.22	583.17	27.89	753.76	666.18	0.664
45.00	19.04	13.99	579.84	28.04	765.93	676.01	0.678
75.00	19.00	13.85	580.12	28.84	775.35	679.17	0.687
105.00	18.58	13.44	576.54	30.42	781.55	673.96	0.695
135.00	17.26	12.84	562.50	37.78	739.87	584.78	0.664
165.00	17.57	12.98	590.75	41.36	766.84	575.57	0.672
195.00	18.48	13.25	600.16	35.72	807.55	655.67	0.705
225.00	20.74	15.01	623.26	31.28	812.94	694.80	0.696
255.00	21.11	14.98	597.93	23.19	817.86	754.78	0.716
285.00	19.27	14.11	593.70	28.02	778.31	687.08	0.681
315.00	19.26	14.46	588.84	28.00	744.73	657.58	0.652
345.00	19.20	14.20	586.71	35.64	762.52	619.69	0.670
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	1155.29	352.65	802.64	50.31	1043.08	0.919	3.69
45.00	1155.29	360.08	795.21	49.63	1043.72	0.924	3.72
75.00	1155.29	374.02	781.26	49.00	1035.20	0.917	3.70
105.00	1155.29	395.73	759.56	48.42	1015.46	0.903	3.60
135.00	1155.29	453.26	702.03	50.21	913.68	0.820	3.03
165.00	1155.29	506.72	648.57	48.41	867.13	0.760	2.88
195.00	1155.29	471.42	683.87	46.21	947.40	0.827	3.32
225.00	1155.29	422.05	733.24	46.54	1010.14	0.864	3.83
255.00	1155.29	322.07	833.22	47.94	1122.24	0.983	4.34
285.00	1155.29	365.64	789.65	48.97	1046.72	0.916	3.73
315.00	1155.29	345.58	805.74	50.78	1039.99	0.910	3.66
345.00	1155.29	444.32	710.96	48.92	943.12	0.829	3.41

**TABLE XXVI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Continued)**

PLANE NO. IMMERSION NO.	α	RADIUS	θ	SLOPE	ϕ		
	1.51	11.030	11.17				
CIRC. POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP.	ABS. FLOW ANGLE	ABS. VELOCITY	AXIAL VELOCITY	ABS. MACH NO.
15.00	22.47	15.17	598.54	36.90	863.34	690.40	0.761
45.00	22.15	14.84	594.12	37.41	868.26	689.68	0.769
75.00	21.80	14.72	592.87	37.89	859.42	678.26	0.761
105.00	21.24	14.15	588.09	39.03	869.92	675.79	0.775
135.00	19.51	13.00	574.26	41.52	860.18	644.01	0.776
165.00	18.67	12.59	575.57	43.83	849.31	612.70	0.764
195.00	19.40	13.16	604.46	42.52	864.09	636.89	0.758
225.00	22.48	15.33	623.25	31.58	869.52	740.61	0.750
255.00	22.95	15.66	615.34	35.72	863.40	700.97	0.750
285.00	23.30	15.42	607.14	35.14	889.66	727.50	0.781
315.00	22.96	15.58	606.25	36.88	864.08	691.16	0.757
345.00	22.61	15.22	600.03	37.10	867.46	691.91	0.764
CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. VELOCITY	REL. MACH NO.	LOCAL WT. FLOW
15.00	906.58	518.36	388.24	29.35	792.06	0.698	2.43
45.00	906.58	527.47	379.11	28.80	787.00	0.697	2.40
75.00	906.58	527.78	378.79	29.18	776.87	0.688	2.34
105.00	906.58	547.79	358.79	27.96	765.13	0.682	2.27
135.00	906.58	570.23	336.35	27.58	726.55	0.655	2.03
165.00	906.58	588.16	318.42	27.46	690.50	0.621	1.86
195.00	906.58	583.97	322.61	26.86	713.93	0.626	1.93
225.00	906.58	455.20	451.38	31.36	867.32	0.748	2.53
255.00	906.58	504.09	402.49	29.86	808.30	0.702	2.47
285.00	906.58	512.09	394.48	28.47	827.57	0.727	2.58
315.00	906.58	518.60	387.98	29.31	792.61	0.694	2.47
345.00	906.58	523.21	383.36	28.99	791.02	0.697	2.44

TABLE XXVI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Continued)

PLANE NO, IMMERISION NO, #	#	RADIUS =	SLOPE #	1.13			
CIPC, POSITION	TOT. PRESSURE	STATIC PRESSURE	TOT. TEMP,	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
29.00	18.29	14.08	587.67	-1.31	713.60	713.42	0.623
59.00	18.31	14.20	586.38	-1.56	702.09	701.83	0.613
89.00	18.49	13.38	584.61	-1.49	767.90	787.63	0.696
119.00	16.30	13.11	580.52	-1.16	796.79	796.62	0.707
149.00	17.05	14.63	572.27	-1.45	542.63	542.45	0.473
179.00	17.62	14.47	577.42	-1.47	626.11	625.90	0.537
209.00	18.03	14.56	607.90	0.06	658.10	658.10	0.561
239.00	20.06	14.48	622.74	0.54	816.20	816.16	0.699
269.00	19.10	14.25	605.67	0.19	764.61	764.61	0.661
299.00	18.53	13.89	596.65	0.25	752.96	752.95	0.655
329.00	18.43	13.97	592.03	-0.37	735.90	735.88	0.642
359.00	18.34	14.01	589.85	-1.05	724.43	724.31	0.632
CIPC, POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL, VELOCITY	REL, MACH NO.	LOCAL WT, FLOW
29.00	1185.21	-16.35	1201.55	59.30	1397.39	1.220	3.49
59.00	1185.21	-19.17	1204.38	59.77	1393.95	1.217	3.46
89.00	1185.21	-20.49	1205.70	56.85	1440.16	1.272	3.74
119.00	1185.21	-16.09	1201.30	56.45	1441.43	1.280	3.74
149.00	1185.21	-13.69	1198.90	65.66	1315.91	1.147	2.74
179.00	1185.21	-16.10	1201.31	62.48	1354.58	1.162	3.04
209.00	1185.21	0.68	1184.33	60.94	1353.06	1.156	3.17
239.00	1185.21	7.66	1177.55	59.27	1432.74	1.227	3.94
269.00	1185.21	2.60	1182.61	57.12	1408.26	1.217	3.70
299.00	1185.21	3.29	1181.92	57.50	1401.38	1.219	3.60
329.00	1185.21	-4.81	1180.04	58.27	1399.16	1.220	3.56
359.00	1185.21	-13.30	1198.31	58.65	1400.36	1.222	3.52

TABLE XXVI - TASK II STAGE CIRCUMFERENTIAL DISTORTION FLOW SURVEY DATA; 100% SPEED; MAXIMUM FLOW;
WITHOUT INLET GUIDE VANES; WITHOUT CASING TREATMENT (Concluded)

CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	LOCAL FLOW WT. FLOW	CIRC. POSITION	WHEEL SPEED	ABS TANG VELOCITY	REL. TANG VELOCITY	REL. FLOW ANGLE	REL. MACH NO.	LOCAL FLOW WT. FLOW	PLANE NO. = 2.20				
														IMMERSION NO. = 5	RADIUS R = 11.775	SLOPE S = 1.14		
														TOT. TEMP.	ABS FLOW ANGLE	ABS VELOCITY	AXIAL VELOCITY	ABS MACH NO.
18.56	967.81	-76.25	1044.06	51.46	1.165	2.41	18.56	967.81	1044.06	51.46	1.165	2.41	18.56	604.01	-5.24	835.05	831.56	0.729
48.56	967.81	-50.20	1018.01	51.85	1.129	2.39	48.56	967.81	1018.01	51.85	1.129	2.39	48.56	600.69	-3.59	801.29	799.72	0.699
78.56	967.81	-23.81	991.62	50.47	1.126	2.47	78.56	967.81	991.62	50.47	1.126	2.47	78.56	597.94	-1.67	818.56	818.22	0.717
108.56	967.81	-24.69	992.50	44.63	1.277	2.68	108.56	967.81	992.50	44.63	1.277	2.68	108.56	593.33	-1.41	1005.80	1005.50	0.909
138.56	967.81	7.24	960.57	53.56	1.046	2.21	138.56	967.81	960.57	53.56	1.046	2.21	138.56	583.37	0.58	709.88	709.35	0.622
168.56	967.81	25.88	941.93	60.92	0.943	1.56	168.56	967.81	941.93	60.92	0.943	1.56	168.56	566.15	2.83	524.56	523.93	0.459
198.56	967.81	34.03	933.78	53.85	0.993	1.93	198.56	967.81	933.78	53.85	0.993	1.93	198.56	562.82	2.86	682.10	682.10	0.586
228.56	967.81	50.86	916.95	48.27	1.056	2.19	228.56	967.81	916.95	48.27	1.056	2.19	228.56	619.21	3.56	817.97	817.97	0.704
258.56	967.81	-76.54	1044.35	49.62	1.185	2.43	258.56	967.81	1044.35	49.62	1.185	2.43	258.56	623.05	-4.93	891.50	888.21	0.770
288.56	967.81	-115.82	1083.63	50.16	1.232	2.42	288.56	967.81	1083.63	50.16	1.232	2.42	288.56	615.06	-7.30	911.57	903.98	0.795
318.56	967.81	-18.29	1066.10	50.71	1.202	2.38	318.56	967.81	1066.10	50.71	1.202	2.38	318.56	610.65	-6.43	877.88	872.36	0.766
348.56	967.81	-87.20	1059.01	52.84	1.163	2.33	348.56	967.81	1059.01	52.84	1.163	2.33	348.56	607.12	-6.05	827.67	823.06	0.720

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